HAM RADIO OUTLET®

WORLDWIDE DISTRIBUTION

Fall/Winter 1995

Communication Equipment Catalog

TS-870S
Kenwood's New
HF Transceiver With
True IF-Stage DSP
KENWOOD
14.200.00 21.295.00

Call Toll Free for Orders and Quotes

Western US/Canada 1-800-854-6046 • Mountain/Central 1-800-444-9476
Southeast 1-800-444-7927 • Mid-Atlantic 1-800-444-4799
Northeast 1-800-644-4476 • New England/Eastern Canada 1-800-444-0047
Maps Pages: 120, 121 • Index Page: 122

Serving You From Twelve Locations

ALINCO®

FALL 1995

DR-150T

This exceptional 2 Meter Mobile is the new standard in satisfaction. 2 Meters with Airband receive + 440MHz receive.
50/25/10W power output adjustable. 100 Memories. Packetable 1200 or 9600 Baud with pin change. Air or Cable Cloning. (This allows two or more users to exchange CPU memory without a PC). Two VFOs. Channel Scope visually monitors frequency action. Built-in S-meter Squelch and Squelch Timer. Three different scan modes. LITZ Emergency alert function. Remote control microphone with DTMF Standard.
6″W x 2″H x 7″D 3.75lbs.

DX-70T

HF+50MHz All Mode Transceiver. The DX-70T is compact and very user friendly. Wide range general coverage. 100 memories with 10 memory group scans. Detachable front panel. CW Auto Break-in. Built in narrow band filter. Full QSK.
2.25″(H) x 7″(W) x 9″(D)
6.25lbs.

DR-610T

This versatile radio gives the operator full command of the 2m and 440 bands. Mobile 2m(50W), 440(35W), 120 Memory Channels, 5 Memory Banks, V/V, U/U, LITZ, 9600 Baud Ready. Remote Control.

DJ-G5TH

2m/440, 5W output, 100 memory ch. per band, V/V, U/U, Backlit keypad, wideband receive, Air Cloning. Allows two or more users to exchange CPU memory without a PC.

ALINCO® ELECTRONICS INC.

ALINCO ELECTRONICS INC.
438 Amapola Ave., Unit 130, Torrance, CA 90501
Phone: (310) 618-8616 Fax: (310) 618-8758

ALINCO
ALINCO ELECTRONICS INC.

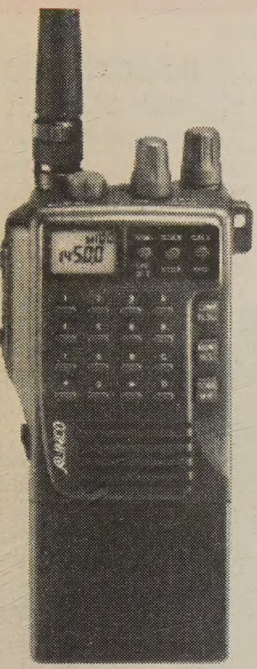
2 METER HANDHELDS

DJ-180T
$289.95

DJ-180T-TH
$309.95

Suggested List Prices

HRO
Discount Prices
180T–$214.95
180TH–$239.95



Just when you thought great audio and tough-as-nails construction were luxury features available only on the most expensive models, and just when you thought simple, intuitive operation was a thing of the past, along comes the Alinco DJ-180T.

This tiny, handheld transceiver offers 5 watts output. The command keys are laid out so you will not have to spend hours studying the manual. You don't need a magnifying glass to see the large 16 digit DTMF pad and illuminated LCD display.

Features include:

- Two watts power output is standard. Up to 5 watts is available with optional 12 VDC battery packs.

- Automatic power-off function allows the DJ-180T to be programmed to shut itself off when left dormant for a predetermined time.

- Expandable memory. The DJ-180T comes standard with ten memory channels including one call channel. It can be upgraded to 50 memory channels with the optional EJ-14U or 200 memory channels with the optional EJ-15U.

- Odd repeater offsets can be programmed from 0 to 15.995 MHz in 5 kHz steps. A different repeater offset can be stored in each memory channel.

- Memory features include storage of repeater offset, shift direction, CTCSS encode, and tone squelch.

- A full range speaker and crisp clean audio circuitry combine to bring you unbelievably great sound.

- The standard battery is a 7.2 volt 700 mAh rechargeable NiCd battery. The unit comes with a wall charger.

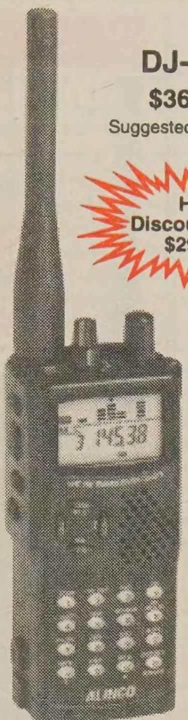
- A low battery indicator LCD lets you know when it is time to recharge your NiCd.

- Enjoy extended receive frequency coverage 130-173.995 MHz.

DJ-G1T
$369.95

Suggested List Prices

HRO
Discount Price
$294.95



Built-in Spectrum Analyzer

Receives 440 MHz

The DJ-G1T has the new "Channel Scope" built-in Spectrum Analyzer. This remarkable feature lets you visually monitor band activity. The oversized display shows seven bar graphs, each of which can be assigned to an independent memory channel. Seven different memories are monitored simultaneously. If one or more memory channels becomes active, the corresponding bar graph lets you know and also gives you information on apparent signal strength.

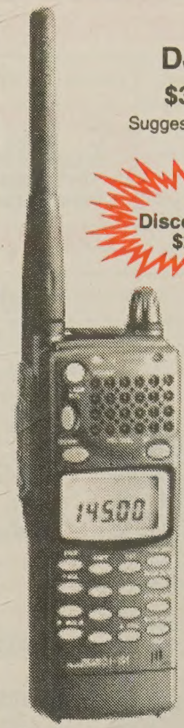
Outstanding features include:

- 440 MHz receive and AM aircraft receive.
- 80 memory channels with 5 auto-dialer memories.
- Programmable delay for autodialer.
- DSQ for private paging.
- Exceptional audio quality (True FM).
- Cross-band semi-duplex.
- CTCSS encode built-in.
- 6 scan modes.
- Odd-splits on all memory channels.
- Shows band activity in frequency domain in 5, 10, 12.5, 15, 20, 25, 30 or 50 kHz steps.

DJ-191
$309.95

Suggested List Price

HRO
Discount Price
$249.95



2-Watt 2 Meter

NEW!

Alinco continues to develop "user friendly" handhelds for the ham. The DJ-191 features an enormous display and effortless entry. Simple operation, "slim line" technology, and durability make this a choice radio of amateurs worldwide.

Features include:

- Wide band receiver 135-173.995 MHz.
- Large, illuminated LCD display.
- CTCSS encoder (50 tones), DTMF squelch encoder and decoder included.
- 1.5 watts output with standard battery. 5 watts output with 9.6 VDC or optional EBP-36N battery.
- 40 memory channels plus call channel store frequency, offset, shift direction, tone information, power level, DSQ setting.
- 9 auto dialer memory channels with redial.
- Seven channel steps: 5, 10, 12.5, 15, 20, 25 and 30 kHz.
- Cloning capability.
- Battery save function and automatic power off.

©1995 Ham Radio Outlet and Asterisk Design.
This catalog may not be reproduced in whole or in part without permission.

ALINCO ELECTRONICS INC.

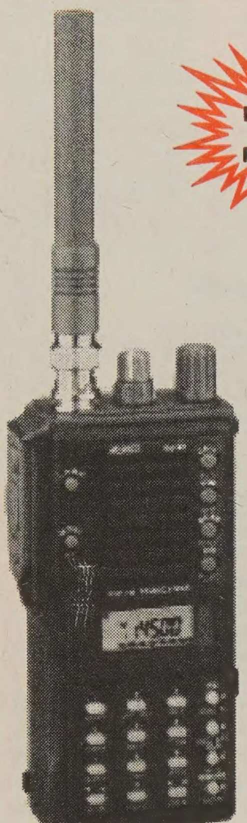
HRO
Discount Prices
F1T–$249.95
F1T-TH–$269.95

DJ-F1T-TH

5-Watt 2m
$379.95

DJ-F1T

2-Watt 2m
$349.95
Suggested List Prices



Alinco has overcome the size and durability problems experienced with many "micro" handhelds with the DJ-F1T. It offers reliability and performance that is the best in its class. The unique battery design allows for a full size keypad and a large speaker packaged in a cast aluminum frame and poly-plastic case. Choose the 2-watt or 5-watt model.

Features include:

- Wide band receiver 135-170 MHz (AM 118-136 MHz with mod).
- Digital frequency display and memory function.
- Pager and DTMF code squelch.
- 5 watts output. (Also available in a 2-watt version: the DJ-F1T.)
- 40 memory channels store frequency, shift, split, tone information, offset, DSQ setting.
- 8 scan modes, dual watch and priority.
- Six channel steps: 5, 10, 12.5, 15, 20 & 25 kHz.
- Programmable VFO range function.

Dual Band Handhelds

DJ-G5T

$599.95
Suggested List Price

HRO
Discount Price
$499.95

Alinco's newest dual band handheld is packed with features in a rugged, mini-sized package.

Features include:

- 5 watts output on both VHF and UHF with 13.8 VDC.
- Built-in CTCSS encoder / decoder.
- Full-duplex, cross-band repeater capability.
- 80 memory channels.
- Channel scope.
- Auto dialer with up to 20 memories.
- Receives FM 108-173.995 & 420-470 MHz. Receives AM on 108-173.995 MHz.
- Airband receive with no modification.
- Band scan, programmed scan or memory scan.
- Cloning function.
- Tone burst function.
- Low battery indicator, automatic power off, and time out timer (TOT).

DJ-582T

$499.95
Suggested List Price

HRO
Discount Price
$399.95

This compact handheld covers 2 meters and 440 MHz. User-friendly design makes it easy to operate.

Features include:

- Receives 135-174 and 420-470 MHz. Receives AM 118-136 and aircraft standard.
- 2 watts output on 2m and 70 cm. 5W with optional EBP-22 battery.
- Built-in CTCSS encoder / decoder.
- Full-duplex, cross-band repeater capability.
- 40 memory channels (any combination VHF / UHF).
- Separate volume and squelch for each band.
- Back-lit keypad and bright red TX LED.
- Easily modified for MARS and CAP operation (proper license required).
- Big, bold keypad buttons and easy-to-grasp control knobs.
- Accelerated scanning speed.
- LCD will display memory frequency or channel number.
- Custom molded antenna.

Alinco Handheld Specifications

Model	Type	Frequency Range	Power	Current Drain Xmit	Current Drain Rec	Power Out **	Memories	Ant Z	Mike Z	Sensivity	Height in	Width in	Depth in	Weight lbs
DJ-G1T	Handheld	2 m	13.8 VDC	1.5 A	120 mA	5 W	80	50 Ω	2k Ω	<.15 µV at 12 dB	4.5	1.9	1.4	0.79
DJ-G5T	Handheld	2m / 440 MHz	13.8 VDC	1.4 A	85 mA	5 W	80	50 Ω	2k Ω	<.16 µV at 12 dB	5.4	2.24	1.1	0.77
DJ-180T	Handheld	2 m	13.8 VDC	1.05 A	130 mA	2 - 5 W	10†	50 Ω	2k Ω	<.15 µV at 12 dB	5.2	2.3	1.3	0.77
DJ-180T-TH	Handheld	2 m	13.8 VDC	1.05 A	130 mA	2 - 5 W	10†	50 Ω	2k Ω	<.15 µV at 12 dB	5.2	2.3	1.3	0.77
DJ-191	Handheld	2 m	13.8 VDC	1.5 A	24 mA	1.5 - 5 W	40	50 Ω	2k Ω	<.16 µV at 12 dB	6	2.25	1.08	0.66
DJ-F1T-TH	Handheld	2 m	13.8 VDC	1.4 A	130 mA	5 W	40	50 Ω	2k Ω	<.15 µV at 12 dB	4.3	2.1	1.5	0.83
DJ-582T	Handheld	2m / 440 MHz	13.8 VDC	1.5 A	120 mA	5 W / 5 W	40	50 Ω	2k Ω	<.15 µV at 12 dB	6.65	2.24	1.23	0.97

† Optional upgrades to 50 or 100 memories. ** Power output is determined by choice of battery pack.

Alinco Handheld Accessories

	DESCRIPTION	F1T	F1T-HP	G1T	162TD	162T	180T 180TH	191	560TA	580T	HRO Price
EBP-10NA	Ni-Cd Battery (7.2V 700 mAh)				*	std			std		$45.95
EBP-12NA	Ni-Cd Battery (12V 700 mAh)				*	*			*		$62.95
EBP-16N	Ni-Cd Battery (7.2V 700 mAh)	std	*								$47.95
EBP-18N	Ni-Cd Battery (12V 600 mAh)	*	std								$76.95
EBP-20N	Ni-Cd Battery (7.2V 700 mAh)									std	$52.95
EBP-22N	Ni-Cd Battery (12V 700 mAh)									*	$80.95
EBP-24N	Ni-Cd Battery (7.2V 1200 mAh)						*				$79.95
EBP-26N	Ni-Cd Battery (7.2V 700 mAh)						std				$52.95
EBP-28N	Ni-Cd Battery (12V 700 mAh)						*				$80.95
EBP-30N	Ni-Cd Battery (7.2V 700 mAh)			*							$62.95
EBP-31N	Ni-Cd Battery (7.2V 1200 mAh)			*							$79.95
EBP-32N	Ni-Cd Battery (12V 700 mAh)			*							$95.95
EBP-33N	Ni-Cd Battery (4.8V 650 mAh)							*			$63.95
EBP-34N	Ni-Cd Battery (4.8V 1200 mAh)							*			$84.95
EBP-35N	Ni-Cd Battery (7.2V 900 mAh)							*			$65.95
EBP-36N	Ni-Cd Battery (9.6V 650 mAh)							*			$94.95
EBP-37N	Ni-Cd Battery (4.8V 700 mAh)							*			$38.95
EBC-6	Mobile Bracket			*			*	*			$15.95
EDC-16	Cigarette Lighter Cable/Charger				*	*			*		$15.95
EDC-21	AC Battery Charger ENP-10				*	std			std		$22.95
EDC-22	AC Battery Charger EBP-12N				*	*			*		$21.95
EDC-24	AC Battery Charger EBP-20N	std	std				std			std	$26.95
EDC-26	Cigarette Lighter Cable/Charger				*	*			*		$19.95
EDC-34	Quick Charger	*	*		*	*	*		*	*	$103.95
EDC-36	Mobile DC power cable with filter			*				*		*	$22.95
EDC-37	13.8 volt power cable			*				*		*	$9.95
EDC-43	Cigarette Lighter Cable									*	$10.95
EDC-49	Wall Charger						*			*	$24.95
EDC-52	Quick Charger (EBP-30N/31N/32N)			*							$119.95
EDC-55	Wall Charger (EBP-30N/31N/32N)			*							$22.95
EDC-60	Rapid Charger							*			$99.95
EDC-63	Wall Charger							*			$24.95
EDH-1	Dry Cell Battery Case				std	*			*		$19.95
EDH-5	AA Dry Cell Case	*	*								$19.95
EDH-6	Dry Cell Case									*	$18.95
EDH-11	Dry Cell Case						*				$21.95
EDH-12	DC Jack Adaptor for ext pwr						*				$12.95
EDH-14	Dry Cell Case			*							$21.95
EDH-16	Dry Cell Case							*			$21.95
EJ-6U	Tone Squelch Unit				*	*					$48.95
EJ-12U	Tone Squelch Unit	*	*								$52.95
EJ-14U	50 Memory Channel Unit						*				$23.95
EJ-15U	200 Memory Channel Unit						*				$34.95
EJ-16U	Tone Squelch Unit			*							$60.95
EJ-28U	CTCSS Decoder Unit							*			$47.95
EME-4	Ear/microphone w/PTT			*						*	$34.95
EME-6	Earphone			*				*		*	$14.95
EMS-2Z	Speaker Microphone				*	*			*		$44.95
EMS-8Z	Remote Control Speaker Mic	*	*	*						*	$48.95
EMS-9	Speaker Microphone			*			*	*			$44.95
EME-10	Headset with VOX	*	*		*	*			*	*	$71.95
EME-11	Earphone Mic with PTT	*	*							*	$52.95
EME-12	Headset w/ear hook VOX & PTT			*			*	*			$72.95
EME-13	Headset with VOX			*			*	*			$72.95
EME-15	Tie pin microphone						*				$55.85
ESC-10	Leatherette Case for EBP-10				*	*					$23.95
ESC-11	Leatherette Case for EBP-10								*		$21.95
ESC-17	Leatherette Case									*	$22.95
ESC-18	Leatherette Case EBP-24N						*				$22.95
ESC-19	Leatherette Case EBP-28N						*				$22.95
ESC-23	Soft Case (EBP-30N)			*							$22.95
ESC-24	Soft Case (EBP-31N/32N)			*			*				$23.95
ESC-28	Soft Case (EBP-37N)							*			$22.95
ESC-29	Soft Case (EBP-33N)							*			$22.95
ESC-30	Soft Case (EBP-34N/35N/36N)							*			$22.95

ALINCO ELECTRONICS INC.

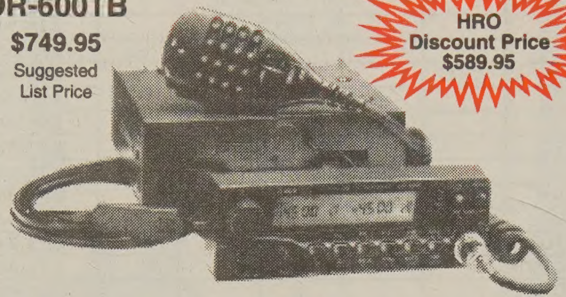
VHF / UHF MOBILES

Dual-band Mobiles

DR-600TB

$749.95
Suggested List Price

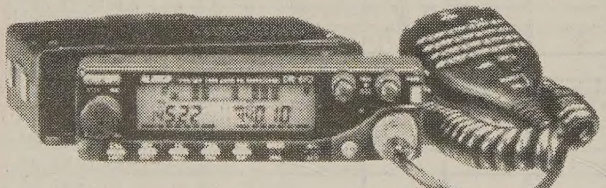
HRO Discount Price
$589.95



This high-powered FM dual-bander may be used as a mobile or base station. Users can exercise full remote control with or without a security code. Both bands can be controlled from a single band HT.

Features include:

- Front panel can be remote mounted with the optional kits EDC-19 or EDC-20.
- Remote control using built-in DTMF decode feature.
- Dual watch function allows reception of VHF and UHF at the same time.
- High Power: 45 watts on 2 meters; 35 watts on 70 cm.
- Remote control microphone controls most radio features.
- Full-duplex, cross-band repeater operation is built-in.
- Extended Receive Range: 135-174 MHz (including AM) and 420-470 MHz. AM 118-136 MHz RX with modification.
- 28 memories. Program CTCSS tones, shift frequencies and directions in each memory.
- MARS modifiable, with proper license.
- CTCSS encode is built-in. Decode with the optional EJ-7U accessory.



DR-610T

HRO Discount Price
$659.95

Alinco continues to make advancements in dual band mobile transceivers. The 2m/70 cm DR-610T just what is needed for mobile or base station operation.

Features include:

- 50 watts VHF and 35 watts UHF.
- Built-in duplexer.
- Built-in CTCSS tone encoder. Decoder is optional.
- Two VFO's.
- Extended Receive Range: 108-174 MHz (including AM) and 420-470 MHz.
- Band, programmed, or memory scan.
- 5 channel auto dialer.
- 120 memories plus split channel, call channel and program scan memory. Expandable memory with optional EJ-23U (120 more memory channels).
- 9600 bps ready with built-in I/O jack.
- Airband receive standard.
- Expanded UHF TX frequencies (438-449.995 MHz).
- Channel scope.
- Cross band repeater function.

Single-Band Mobiles

DR-150T

$479.95
Suggested List Price

HRO Discount Price
$379.95

Engineered for satisfaction, the new DR-150T sets a new industry standard for 2 meter radios. It features up-to-the-minute technology and a full powered 50 watts.

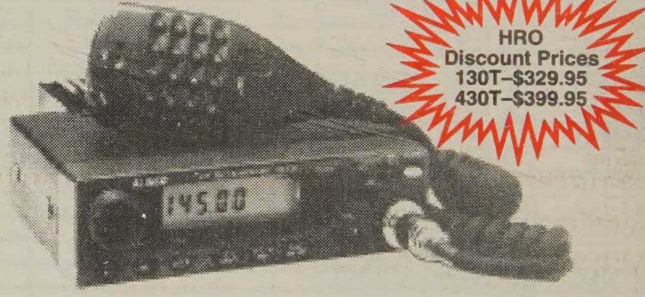
Enjoy visual scanning capability of multiple frequencies along with simultaneous receive audio. While in the channel scope mode, activate the scan function and quickly access only those frequencies that show a strong signal. The "S-meter" squelch control has 8 adjustable settings for custom operation.

Alinco has designed a new Safety Dialer which allows the operator to use the autodialer by just pushing the up/down button on the mike.

Here are just a few of its many outstanding features:

- Receives 108-173.995 MHz and 440-449.995 MHz. Transmit 144-147.995 MHz.
- Two VFO's.
- 50 watts high output, 25 watts medium, and 10 watts low.
- 100 memory channels, 1 call channel, 1 program scan frequency memory.
- Channel Scope (Visual Search).

HRO Discount Prices
130T–$329.95
430T–$399.95



DR-130T – 2m

$419.95
Suggested List Price

DR-430T – 440 MHz

$499.95
Suggested List Price

These FM mobile transceivers for 2 meters and 440 MHz condense maximum performance and operating convenience into ultra compact packages. Their impressive features provide maximum flexibility in FM mobile installations.

Features include:

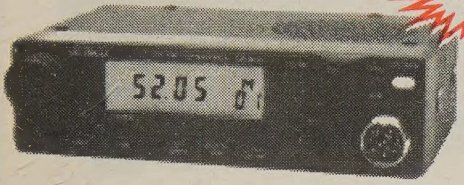
- 50 watts (DR-130T) and 35 watts (DR-430T) RF output with a HI / LO switch.
- Compact size and lightweight.
- Highly visible color LCD display.
- Four scanning modes: VFO, memory, programmed and priority.
- 20 multfunction memories are fully programmable. Each channel stores operating frequency and standard offset. Expands to 100 memories with optional EJ-19U.
- Built-in programmable encode and optional decoder allow restricted access operation.
- The standard microphone includes UP / DOWN buttons and DTMF encoder.

HF & 6-METER MOBILES

6-Meter Mobile

DR-M06T

HRO Discount Price $379.95



$499.95
Suggested
List Price

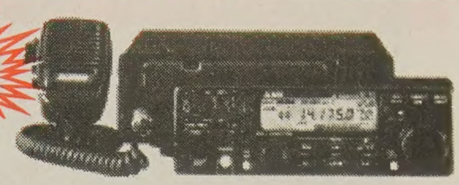
Alinco's DR-M06T FM transceiver for 6 meters provides 10 watts output. It has many of the features of the popular DR-130T.

Features include:

- Frequency range from 50 to 54 MHz.
- 5, 10, 12.5, 15, 20 and 25 MHz tuning steps.
- 100 memory channels.
- Highly visible color LCD display.
- Four scanning modes: VFO, memory, programmed and priority.
- Built-in 50 tone programmable encode and optional decoder allow restricted access operation.
- The standard mike includes UP / DOWN buttons and DTMF encoder.
- F3E (FM) modulation.
- 10 watts or 1 watt power output.
- 30 – 450 second time-out timer.

HF Transceiver

HRO Discount Price $1019.95



DX-70T

Alinco's mobile HF transceiver covers the HF ham bands plus 6 meters in a package the size of most VHF mobile transceivers.

It provides 100W output from 1.8-30 MHz and 10 watts on 6 meters. The detachable control head aids mobile installation. It has full QSK for CW operation. The 100 memory channels, built-in RF preamplifier, noise blanker and dual VFO are standard features.

Attention Internet Users

Look for Ham Radio Outlet on the World-Wide Web.
Ham Radio Outlet's Home Page :
HTTP://WWW.HAMRADIO.COM
Also E-Mail:
West Coast, Ken, K1ZKM: KDM@HAMRADIO.COM
East Coast, Chuck, KM4NZ: CLW@HAMRADIO.COM

Alinco Mobile Specifications

Model	Primary Use	Frequency Range	Power	Current Drain Xmit	Current Drain Rec	Power Out	Memories	Ant Z	Mike Z	Sensivity	Height in	Width in	Depth in	Weight lbs
DR-130T	Mobile	2 m	13.8 VDC	9.5 A	500 mA	50 W	20*	50 Ω	600 Ω	<.16 µV at 12 dB	1.6	5.5	6.75	2.42
DR-150T	Mobile	2 m Trans	13.8 VDC	10 A	600 mA	50 W	100	50 Ω	600 Ω	<.16 µV at 12 dB	1.6	5.6	6.2	2
DR-430T	Mobile	440 MHz	13.8 VDC	9.5 A	500 mA	35 W	20*	50 Ω	600 Ω	<.16 µV at 12 dB	1.6	5.5	6.75	2.42
DR-M06T	Mobile	6 m	13.8 VDC	3.0 A	600 mA	10 W	100	50 Ω	600 Ω	<.16 µV at 12 dB	1.6	5.6	4.6	2.42
DR-600TB	Mobile	2m/440 MHz	13.8 VDC	10 A	800 mA	45 W/35 W	28	50 Ω	600 Ω	<.16 µV at 12 dB	2.0	5.9	7	3.3
DR-610T	Mobile	2m/440 MHz	13.8 VDC	11.5 A	1.2 A	50 W/35 W	120 †	50 Ω	600 Ω	<.16 µV at 12 dB	1.6	5.6	6.5	2.45

* Expand to 100 with optional EJ-19U †Expand to 240 with optional EJ-23U

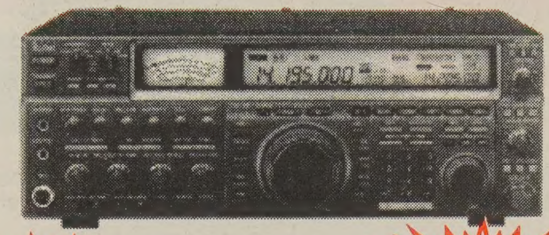
Alinco Mobile Accessories

Model	Description	DR-M06	DR-130T DR-430T DR-M06T	DR-119T	DR-150T	DR-1200T DR-1200TH	DR-570T	DR-590T	DR-599T DR-592T	DR600T	HRO Price
EJ-7U	Tone Squelch Unit							*	*	*	**$69.95**
EJ-8U	DTMF Unit							*	*	std	**$47.95**
EJ-19U	Memory Expansion		*								**$35.95**
EJ-20U	Tone Squelch Unit	*	*		*						**$46.95**
EDC-19	Mounting Kit 9'10" Cable							*	*	*	**$40.95**
EDC-20	Mounting Kit 16'5" Cable							*	*	*	**$46.95**
EMS-3	Remote Control Microphone with DTMF					*		std	std	std	**$65.00**
EMS-5	Remote Control Microphone with DTMF						std				**$63.95**
EMS-10	Remote Control Microphone with DTMF			std							**$56.95**
EMS-11	Remote Control Microphone with DTMF		std								**CALL**
PC-15	Power Cord (15 A)			*		*	*	*	*	*	**$13.95**
PC-15B	Power Cord		*		*						**$13.95**
MB-110	Mounting Bracket with Spring			*		*					**$20.95**
MB-130	Mounting Bracket		*		*						**$20.95**
MB-570	Mounting Bracket without Spring						*	*	*	*	**$20.95**

† Microphone available only for the DR-1200T

ICOM

For the Serious DX'er



NEW!

IC-775 / DSP

$4760.95
Suggested List Price

HRO
Discount Price
$3849.95

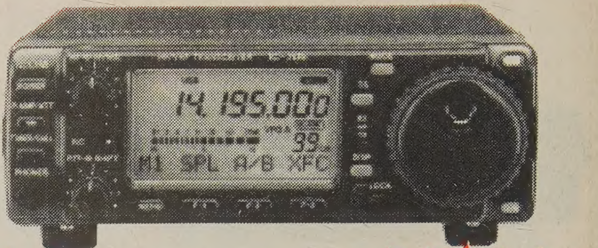
Serious DX'ers require serious equipment. The IC-775 / DSP is fun to operate and it was engineered from the ground up using high-quality components to offer performance you will find nowhere else. Icom's new DSP technology brings you unsurpassed signal quality. Control of the signals at the modulation stage produces high quality SSB transmit signals that analog methods can not compete with. Noise reduction at the demodulation stage results in crystal clear signals. This is revolutionalry DSP technology at work for the serious DX'er

Major features include:

- Digital noise reduction. The DSP feature provides outstanding signal-to-noise ratio for clean receive signals.
- Digital automatic AF notch.
- Digital low-pass and high-pass filters.
- Digital ultra-narrow CW filter.
- Digital automatic audio peaking filter.
- MOS-FET finals.
- Twin passband tuning, noise blanker, and AGC.
- Direct Digital Synthesizer (DDS) for frequency stability.
- High performance general coverage receiver.
- Built-in antenna tuner.
- Built-in memory keyer and QSK function.
- Data mode for RTTY, SSTV or packet operation.

HRO Staff Members Are Helpful Hams. Give Us a Call.

HF / VHF All Mode



NEW!

IC-706

$1560.95
Suggested List Price

HRO
Discount Price
$1299.95

The ultra-compact IC-706 HF / VHF all-mode transceiver features a removable control head for safe, effective mounting in even the most compact vehicles. This full-featured transceiver is equally capable of high performance in home and field applications.

The IC-706 covers all of the traditional HF bands from 160 through 10 meters as well as the popular six and two meter bands. It includes all modes over its entire frequency range, including FSK for RTTY operation, and narrow band FM on the HF bands. The receiver offers continuous coverage from 30 kHz to 2 meters with wide AM and FM broadcast reception.

The full-featured IC-706 includes a 100 watt output transmitter (40 watts AM) from 160 through 6 meters, with 10 watts output on 2 meters (4 watts AM). VOX is included, as well as a speech processor, and optional narrow SSB filter. CW features include a built-in keyer, optional narrow receiver filter, full break-in (QSK), adjustable CW pitch and CW reverse functions.

101 memories are offered, with up to 9 alphanumeric characters for each memory. A dot matrix display shows all of the popular menu features, frequency and multifunction meter data. A spectrum scope displays at a glance which bands show activity.

Features include:

- Compact and feather weight.
- Covers 6 m and 2 m in addition to the HF bands.
- Detachable front panel.
- All-mode operation including RTTY.
- I-Loop PLL circuit.
- Optional antenna tuner.
- Multiple functions for CW.
- Simple spectrum scope function.
- 101 alphanumeric memories.
- Dot-matrix display.
- Plus more features and options.

Icom HF Specifications

Model	Receive Freq Range	Power Supply	Current Drain Xmit	Power Output					Mike Z	Receive Circuitry	Sensitivity 1.8-30 MHz	RIT / XIT Range	Notch Atten	Audio
				A M	FM	SSB	C W	FSK						
IC-706	30kHz-200MHz	13.8 VDC	20A	40*	100*	100*	100*	100*	600 Ω	Triple Conversion	<.16µv at 10 dB	±1.2 kHz		>2.0W
IC-728	500 kHz - 30 MHz	13.8 VDC	20A	40	100	100	100		600 Ω	Triple Conversion	<.16µv at 10 dB	±1.2 kHz		>2.6 W
IC-736	#	120 VAC	500 VA	40	100†	100†	100†		600 Ω	Triple Conversion	<.15µv at 10 dB	±1 kHz		>2.6 W
IC-738	100 kHz - 30 MHz	13.8 VDC	20 A	40	100	100	100	100	600 Ω	Triple Conversion	<.15µV at 10 dB	±9.9 kHz		>2.6 W
IC-775/DSP	100 kHz - 29.99 MHz	120 VAC	135 VA	50	200	200	200	200	600 Ω	Quadruple Conversion	<.16µv at 10 dB	±9.9 kHz	auto	>2.6 W
IC-781	100kHz - 30MHz	120VAC	760 VA	75	150	150	150	150	600 Ω	Quadruple Conversion	<.16µv at 10 dB	±9.9 kHz	45 dB	>2.6 W

† Output is continuously adjustable from 5 to 100 W   # 500 kHz - 29.995 MHz and 45 - 60 MHz   * 10W SSB/CW/FM/RTTY and 4W AM for 2m.

HF TRANSCEIVERS

IC-738

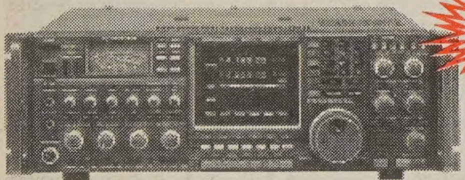
$1935.95
Suggested List Price

HRO
Discount Price
$1539.95

The IC-738 is more than simply a successor to the IC-737A. It brings to the HF enthusiast a host of new features including one-Hz indication, an antenna tuner with automatic re-tune function, quick split with pre-programmable offset function, transmit meters, RF gain control, and more.

Major features include:

- Automatic antenna tuner has preset memories for each 100 kHz step provide high speed tuning.
- The meter reads power and ALC while transmitting. It is an S-meter during receive.
- Final transmitter outputs 100 watts in SSB, CW and FM modes on all amateur HF bands and operates at 100% duty cycle.
- Separate CW key jacks allow the connection of an external keyer plus use of the internal keyer.
- RF gain control adjusts the receiver gain continuously to reduce undesired signal reception. Signals stronger than the S-meter indication can be received.
- Quick split function allows preprogramming of offsets.
- Two automatic antenna connectors that can be automatically selected.
- The DDS IC is used to improve the frequency resolution to one Hz.
- The IC-738 has a set mode for programming infrequently changed values or functions. Up to 15 items can be set.



HRO
Discount Price
$8499.95

IC-781

$8835.00
Suggested List Price

The IC-781, ultimate amateur HF transceiver, is delivered complete. The only internal option available is the FL-103 wide SSB filter.

Major features include:

- An advanced spectrum scope analyzer with a 5-inch CRT shows status of the radio on two menu screens and 17 operational screens including displays of memory channels, sleep and daily times, built-in clocks and packet terminal monitor. Multiple scanning modes.
- Built-in automatic antenna tuner.
- Full break-in keying. Multifunction keyboard controls radio operation.
- Dual Watch (dual receive). Twin bandpass tuning. Noise blanker, APF and notch filter.
- Band stacking registers. All modes of operation: SSB, CW, RTTY, FM and AM.
- Direct Digital Synthesizer (DDS) System provides low phase noise and rapid PLL lock up time. Fast T/R switching makes this perfect for packet and AMTOR.

IC-736

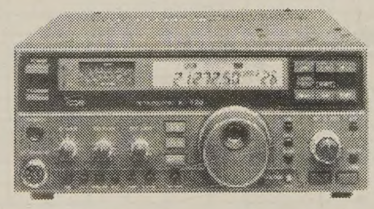
$2385.00
Suggested List Price

HRO
Discount Price
$1899.95

The IC-736 is an all band (including 6M), all mode transceiver with a general coverage receiver. The IC-736 has a built-in power supply and an internal antenna tuner usable for both HF and 50 MHz bands. You are provided with 1 Hz indication and quick split with pre-programmable offset function.

Other features include:

- 500 kHz–29.995 MHz and 45 MHz–60 MHz receive. DDS (Direct Digital Synthesizer) provides frequency resolution to 1 Hz. RIT and XIT independently change receive and transmit frequencies—great for split frequency operation.
- Automatic antenna tuner with preset memories for each 100 kHz step. 10 – 160 M as well as 6 meters.
- Two antenna connectors which includes an automatic antenna selector.
- 101 memory channels include 10 split memories and 2 scan edges.
- Double band stacking register for all bands.
- 100 W of output power is provided for all amateur bands including 50 MHz using MOS-FET driver and final amplifier stages. Finals are kept cool with a die cast aluminum frame and 2 large fans permitting 100% duty cycle operation.
- Pass band tuning and AF notch.
- Up to 10 electronic "Memo Pads" can be used during contests or DX hunting.
- PWR, ALC, power out, and S-reading meter functions.
- Full (QSK) break-in CW operation. Separately designed CW key jacks allow you to connect both a memory keyer and a paddle.
- Pre-program offset frequencies for Quick Split.



IC-728

$1325.00
Suggested List Price – Call for HRO's Discount Price

This HF all-band transceiver is designed for ease of use and mobile operation. Functions such as passband tuning and speech processing supplement the basic features.

Major features include:

- General coverage, triple conversion receiver 500 kHz–30 MHz. SSB, CW and AM receive are standard. AM transmit and FM operation available with the optional UI-7.
- Direct Digital Synthesizer. Multiple scanning abilities.
- 26 memory channels with dual VFO. 10 Hz minimum step tuning plus RIT.
- Passband tuning and speech compressor. CW break-in with adjustable delay.

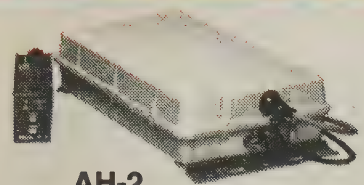
Icom Base Station Accessories

OPTIONS		HF RADIOS														VHF / UHF RADIOS					RECEIVERS						
		781	775	765	751A	738	737A	736	735	729	728	726	725	707	706	575H	275H	475H	820H	970	R9000	R71A	R72	R100	R7000	R7100	List Price Call for HRO Discount Price
External AC Power Supply	PS-15					*	*							*					*								$330.95
	PS-55				*	*	*		*	*	*	1	1	*		*	*	*	*								$345.95
	PS-30				*	*	*		*	*	*	*	*	*	*				*								$470.95
	PS-85														*												TBA
Internal AC	PS-35				*																						$239.95
External Speakers	SP-3	*		*	1	*	*	*	*	*	*	*	*	*		*	*	*	*	*	*	1	*	*	1	*	$102.95
	SP-7				*	*	*	*	1	*	*	1	1	*	*	1	1	1	*			*	*	*	*	*	$68.95
	SP-10														*												$55.95
	SP-12														*												$35.95
	SP-20	1	*	1	*	*	*	*	*	*	*	*	*	*		*	*	*	*	*	1	*	*	*	*	*	$225.95
	SP-21		*			*	*	*						*					*								$100.95
HF Linear Amplifiers	2KL	2	*	2	*	*	*	*	2	*	*	2	2	*													$2,710.00
	4KL	*	*	*	6	*	*	*	*	*	*	*	*	*	*												$9,000.00
Automatic Antenna Tuners	AH-2a			*	6					*	*																$691.95
	AH-3					*	*	*		7	*	*	*	*	*												$594.95
	AT-150				6	*	*	*	*	*	*	*	*	*													$539.95
	AT-160									*	*			*	*												$442.95
	AT-180																										TBA
	AT-500	*	*	*	*	*		*	2	*	*	2	2	*													$995.95
Antenna Selectors	EX-20															*											$96.95
	EX-627	*	*	*	6	*	*	*	*	*	*	*	*	*	*												$373.95
Antennas	AH-2B			*	*		*	*	*	*	*	*	*														$275.95
	AH-610															*											$137.95
Weather Proof Preamps	AG-25																*		*	*							$160.95
	AG-35																	*	*	*							$160.95
	AG-1200																			*							$139.95
Microphones	HM-36	*	*	*	*	std	std		*	*	*	*	*			*	*	*		*							$54.95
	HM-103														*												TBA
	SM-6	*		*	*	*	*	*	*	*	*	*	*	*		*	*	*	*	*							$93.95
	SM-8	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*							$145.95
	SM-20	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*							$188.95
Mounting Brackets	MB-5								*	*	*	*	*	*		*	*	*	*				*			*	$42.95
	MB-12																					*			*		$43.95
	MB-18				*																						$43.95
	MB-19		*																								$59.95
	MB-49					*	*	*																			$49.95
	MB-62																										TBA
	MB-63																										TBA
Handles	MB-19	3		*																	3						$54.95
	MB-23									*	*	*	*	*		*	*	*	*				*			*	$11.99
Remote Controllers	RC-11																					*					$85.95
	RC-12																								*		$85.95
TV Adapters	TV-R7000																								*		$270.95
	TV-R7100																									*	$310.95
	TV-970																			*							$510.95
	TV-1275																										$340.95
CI-V System	CT-16	*	*	*	4	*	*	*		*	*	*	*	*	*		*	*			*	4					$116.95
	CT-17	*	*	*	4	*		*	*	*	*	*	*	*	*		*	*	*		*	4	*		*	*	$123.95
	UX-14				*																						$90.95
High Stability Crystal Units	CR-64				*					*	*	*	*			*	*	*				*	*				$114.95
	CR-263																										$123.95
	CR-282		*	*		*	*	*																			$119.95
	CR-293																		*								$276.95
	CR-338													*													$59.95
	CR-502														*												TBA
Keyer Unit	EX-243				3				*											*							$100.95
FM Unit	EX-257																					*					$79.95
	UI-8																						*				$86.95
	UI-9													*													$86.95
AM-FM Unit	UI-7										*		*														$86.95
Tone Encode	UT-30			*	*	*		*	*	*	*	*	*	*			*	*									$40.95
Tone Squelch	UT-34															*	*	*		*							$59.95
	UT-50																		*								$54.95
Voice Synthesizer	EX-310				*																	*			*		$77.95
	UP-36	*		*													*	*	*	*	*		*			*	$54.95
	UT-66		*																								$66.95
	UT-102															*											TBA
DSP Unit	UI-100		*													*											$364.95

1: Style and size are matched with the equipment. 2: An optional OPC-118 CABLE is required. 3: Included. 4: An optional UX-14 is required.
5: Option unnecessary. 6: An optional OPC-137 CABLE is required. 7: for HF band only.

HF ACCESSORIES / GPS

Icom HF Tuners



AH-2

This automatic HF antenna tuner for the IC-735 is ideal for mobile use since no manual tuning is needed. For indoor or outdoor use. 3.5 MHz to 30 MHz. System includes an antenna (AH-2b), the AH-2a tuner and controller units. The AH-2a (tuner and controller) and the AH-2b (mount and whip) may be purchased separately.

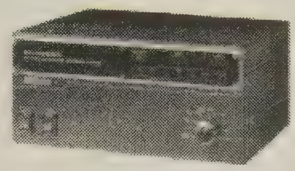
Suggested ListPrices: AH-2 $966.95
AH-2a $691.95
AH-2b $275.95

AH-3

The AH-3 automatic antenna tuner operates with the IC-725, IC-728, and IC-729 HF transceivers. Use it with the AH-2b antenna element for mobile operation. The weather-proof design has automatic digital control tuning and eight frequency memories. **Suggested List $594.95**

AT-160

This automatic antenna tuner is designed for the **IC-728 / 729**. It has a CPU with 9 memories for quick tuning. Attach it easily to the IC-728 / 729 side panel and control it from the transceiver. **Suggested List $442.95**



AT-500

Fully automatic HF antenna tuner designed for short tune-up time. Automatic band switching (compatible with the IC-2KL linear amplifier). Matching circuit can be preset for each band. Four antenna connections. Maximum input power 500W. AC or DC. **Suggested List $995.95**

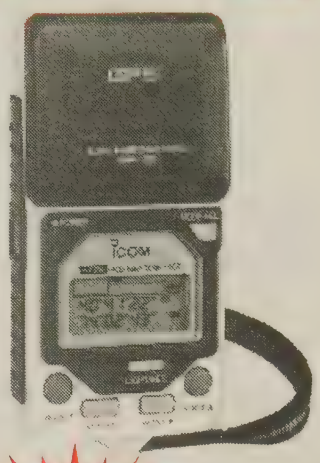
AT-150

This matching tuner for the **IC-735** is fully automatic and interfaces directly with the radio. With the appropriate cables, the AT-150 can also be used with the other Icom HF radios. **Suggested List $539.95**

Icom HF Tuners

Features	AT-160	AT-150	AH-3	AH-2a	AT-500
Input Power (Watts)					
Max	100	100	120	120	500
Min	8	8	10	10	50
Auto Tune Time (seconds)					
New Band	≤3	≤3	2 - 4	2 - 4	4 - 7
Same Band	≤3	≤3	<1	<1	≤3
Tuning Accuracy	VSWR<1.2:1	VSWR<1.2:1	VSWR<1.5:1 with AH2b	VSWR<1.5:1 with AH2b	VSWR<1.2:1
Auto Antenna Selection		4 antennas			
Auto Band Switching	yes	yes	yes	yes	yes
Preset Matching	CPU Controlled	Auto Preset	CPU Controlled	CPU Controlled	yes
Power Supply	13.8 VDC	13.8 VDC	13.8 VDC	13.8 VDC	13.8 VDC 117 AC
Frequency Coverage	160, 80, 40, 30, 20, 17, 15, 12, 10 Meters	160, 80, 40, 30, 20, 17, 15, 12, 10 Meters	1.8-28 MHz	1.8-28 MHz	160, 80, 40, 30, 20, 17, 15, 12, 10 Meters
Radios	IC-706,707,728 & 729	All Icom HF Rigs	706,707,725, 726, 728, 729, 736,737A, 738	Weather resistant 735, 751A	All Icom HF Rigs
Suggested Retail	$442.95	$580.95	$594.95	$691.95	$995.95

Pocket-Sized GPS



Limited Time Special

GP-22
$429.95

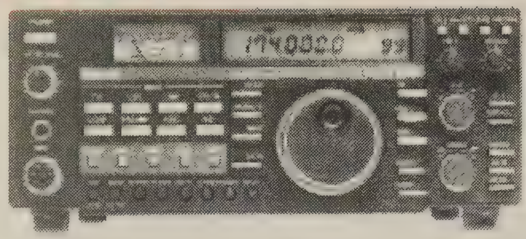
Icom's GP 22 GPS (Global Positioning System) Receiver gives fast and accurate positioning worldwide in palm-sized dimensions. The GPS-22 combines powerful navigation features and user-friendly operation in a rugged, water resistant body.

Features include:

- 5-channel parallel receiving for positioning fixes tracking up to 5 satellites continuously providing 2- or 3-dimensional fixes.
- Simple Operation with a minimum of controls and a large LCD backlit display.
- Versatile Navigation Functions: positioning fixes, instant destination navigation, route navigation, course and speed over ground (COG/SOG), cross track error, estimated time of arrival (ETA), bearing and range to a waypoint.

Icom HF Filters

Filter	Center Frequency	Bandwidth	Mode	781	775	765	738	737A	736	735	729	728	725	726	707	706	R71A	R72	R9000	List Price
FL44A	455 kHz	2.4 kHz	SSB			std											*			$206.95
FL52A	455 kHz	500 Hz	CW	std		std	*	*	*						*				*	$178.95
FL53A	455 kHz	250 Hz	CW	std	*	*	*	*	*						*					$178.95
FL33	9.0100 MHz	6.0 kHz	AM																	$53.95
FL32A	9.0106 MHz	500 Hz	CW	std		std				*							*			$92.95
FL63A	9.0106 MHz	250 Hz	CW							*										$88.95
FL70	9.0115 MHz	2.8 kHz	SSB																	$88.95
FL100	9.0106 MHz	500 Hz	CW				*	*	*		*	*	*	*		*	*	*		$96.95
FL101	9.0106 MHz	250 Hz	CW	std	*	*	*	*	*		*	*	*	*		*		*		$96.95
FL102	9.0100 MHz	6.0 kHz	AM	std	*	*														$67.95
FL103	9.0115 MHz	2.8 kHz	SSB	*												*	std			$89.95
FL-222	455 kHz	1.9kHz	SSB		*															$199.95
FL-223	9.0115 MHz	1.9 kHz	SSB		*											*				$84.95



IC-275H IC-475H

$1915.95 $2325.95

Suggested List Prices—Call for Quotes

With their superior performance and features, the famed IC-275H and IC-475H lead the way on the 2 meter and 430 MHz bands. The state-of-the-art DDS (Direct Digital Synthesizer) system enables high speed lockup times and higher carrier-to-noise characteristics and at the same time allows 10 Hz tuning steps. High-speed transmit / receive switching is a packet operators's delight.

Its compact size allows for all-mode operation almost anywhere, even in your vehicle. For satellite communications, connect an optional CT-16 Satellite Interface Unit between these transceivers for automatic tracking of uplink and downlink frequencies.

Major features include:

- 100 watts for IC-275H and 75 watts for IC-475H.
- USB, LSB, CW and FM modes.
- DDS system.
- 99 memory channels.
- Programmable call channel.
- Noise blanker and adjustable IF notch filter.
- CW full / semi break-in capability.
- Programmable offset capability.
- Multiple scan functions.
- AF speech processor.
- Data switch for data communications.
- Optional voice synthesizer and tone squelch units.
- CI-V computer control system.

IC-575H

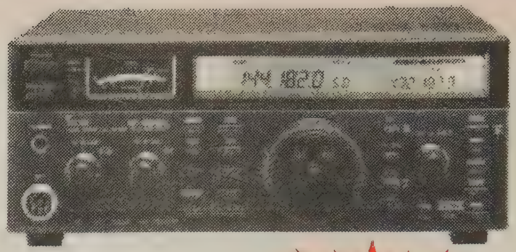
$2460.95

Suggested List

A beautifully sophisticated 28 / 50 MHz transceiver designed for those who are serious about DX'ing. All the latest in Icom's innovative technology including 100 watt output power, DDS System, CW full / semi break-in capability has gone into a compact body. To get propagation information, receive overseas TV stations with in the 26-56 MHz range and then store them into one of the memory channels.

Major features include:

- USB, LSB, FM, AM, and CW modes.
- Full 100 watt output power.
- DDS System.
- CW full / semi break-in capability.
- 26-56 MHz continuous receive.
- Noise blanker
- Adjustable IF notch filter.
- Built-in speech compressor.



IC-820H

$1999.95

Suggested List Price

HRO
Discount Price
$1699.95

The IC-820H base station dual-band transceiver with 45 watts on VHF and 40 watts on UHF is the perfect rig for satellite work.It is compact and competitively priced without sacrificing features.

Its newly designed DDS features 1 Hz resolution. The IF shift provides for good interference reductions. Satellite communications are enhanced with satellite memory and tracking functions.

Major features include:

- Dual-band transceiver for 2 meters and 440 MHz FM.
- 45 watts output on 2 m and up to 40 watts on 440 MHz.
- All-mode operation (FM, SSB and CW).
- Newly designed DDS for 1 Hz resolution. The IC-820 has a normal PLL as the main loop and a DDS as the sub-loop. The new I-loop has a single loop and generates a signal with 1 Hz resolution.
- The compact size enables easy installation in a shack as well as a vehicle. Overall dimensions may be small, but important points such as LCD size and space between switches are more than adequate.
- High-stability crystal.
- Optional tone scan.
- 2 VFO's for both VHF and UHF bands.
- IF shift has been provided for interference reduction. The IF shift circuit shifts the center frequency of the receiver passband electronically to evade interfering signals.
- Satellite communication functions include reverse and normal tracking on the main and sub-band VFOs and include a Doppler compensation function. There are 10 satellite memories for easy selection of desired satellite frequencies.
- Separate main and sub S-meters.
- Packet operation is supported up to 9600 bps. The DATA terminal is connected to its modulator circuit directly so no modification is necessary even at 9600 bps. The modulator circuit is designed to prevent exceeding the maximum deviation even with large amounts of data.
- 50 memory channels can be user allocated to main and sub-bands.
- 2 antenna connectors for VHF and UHF operation.
- RIT function.
- Noise blanker to eliminate pulse-type noise.
- Attenuator to prevent signal distortion.

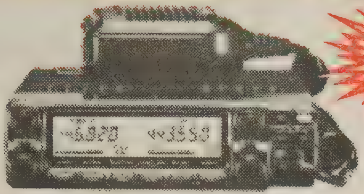
Icom VHF Specifications

	Freq Range	Mode	Power Supply	Current Drain Xmit	Curernt Drain Rec	Power Out	Ant Z	Mike Z	Sens	RIT/XIT	Audio Pwr	Built-in AC Supply
IC-275H	2 m	All	13.8 VDC	20 A	1 A	100 W	50 Ω	600 Ω	< .1 µV	±9.9 kHz	2 W	no
IC-281H	2 m/440 rec	FM	13.8 VDC	10.5 A	800 mA	50 W	50 Ω	600 Ω	<.16 µV		2.4 W	no
IC-481H	440/2m red	FM	13.8 VDC	10 A	800 mA	35 W	50 Ω	600 Ω	<.16 µV		2.4 W	no
IC-475H	440 MHz	All	13.8 VDC	20 A	1 A	80 W.	50 Ω	600 Ω	< .18 µV	±9.9 kHz	2 W	no
IC-575H	6 m/10 m	All	13.8 VDC	20 A	1 A	100 W	50 Ω	600 Ω	<.25µV	±9.9 kHz	2 W	no
IC-820H	2m/440 MHz	All	13.8 VDC	16 A	2.0 A	45/35 W	50 Ω	600 Ω	<.11µV		2 W	no
IC-2000H	2m	All	13.8 VDC	10.5 A	1.0 A	50 W	50 Ω	600 Ω	<.13µV		2.4 W	no
IC-2350H	2m/440 MHz	FM	13.8 VDC	11.5 A	1.8 A	50/35 W	50 Ω	600 Ω	<.13 µV		2.4 W	no
IC-2700H	2m/440 MHz	FM	13.8 VDC	12A	1.8 A	50/35 W	50 Ω	600 Ω	<.16 µV		2.0 W	no
IC-D100H	2 m/440 MHz/1.2 GHz	FM	13.8 VDC	3.8-12A	1.8 A	50/35/10 W	50 Ω	600 Ω	< .16 µV		> 2.4 W	no

VHF/UHF MOBILES

Dual-Band Mobiles

IC-2350H
$616.95
Suggested List Price—Call for Quote



HRO Discount Price $529.95

This easy-to-operate dual-band FM mobile transceiver is perfect for FM newcomers and experienced amateurs alike. It is designed especially for convenient operation while driving.

Major features include:

- 100 memory channels, 50 for each band storing operating frequency, offset direction, offset frequency, tone squelch (optional UT-89 required) and tone frequency.
- Programmable tone encoder.
- Independent tuning knobs and switches for each band.
- 50 W output on 2 m; 35 W on 70 cm.
- Programmable band and memory scanning.
- Full-duplex operation for cross-band operation.

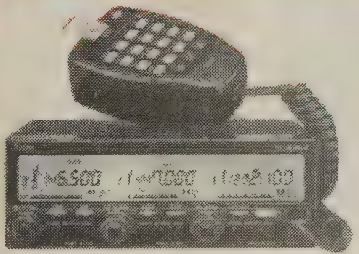
IC-2700H
$959.95
Suggested List Price – Call for Quote

FREE Infrared Mike

This small, multi-functional 2m / 70 cm FM transceiver is full featured and easy to operate. The front panel is detachable for installation flexibility.

Major features include a 3-channel log memory and repeater memory, separate controls for each band, full remote control microphone and optional infrared wireless microphone. It features multiple scanning functions with 100 memories. 20 to 80 memories can be allocated in steps of 10 to the bands with a maximum of 100 total allocated. Four levels of digital squelch are available. Output power on 2m is 50 watts and 35 watts on 70 cm.

Triple-Band Mobile



IC-D100H
$1570.95
Suggested List Price—Call for Quote

Icom's tri-band, FM mobile transceiver for the 144, 440, and 1200 MHz amateur bands is compact, full of deluxe features, and yet easy-to-operate for driving safety.

The IC-D100H features include:

- Detachable front panel option. An OPC-332 or OPC-333 is required to use the front panel apart from the main body.
- Independent 144, 440 and 1200 MHz band units. Independent antenna connectors for the operating bands allows connection of an external duplexer or triplexer.
- Transmit and receive operations allow each display band to be selected as the operating band allowing simultaneous receive of 3 signals.
- 4 levels of digital squelch.
- Multifunction DTMF microphone.
- 642 memory channels.
- Other features include: independent dials and switches; scan options including full scan, programmed scan, memory scan and priority scan; set mode capability to customize the rig to suit your needs; multiple tuning steps; dual or mono band operation; sub-band access function; sub-band busy beep; front panel lock; optional pager and code squelch function (UT-75 required); optional voice synthesizer (UT-66); 3 external speaker jacks; partial reset; audio mute function; powerful cooling fan; one-touch PTT with time-out timer function.

Single-Band Mobiles

HRO Discount Price $299.95

NEW!

IC-2000H
$430.95
Suggested List Price

With 50 watts of output, the IC-2000H provides the power to reach even the most distant repeaters. Lower settings of 10 and 5 watts are also available. Die-cast aluminum construction combined with a large heat sink help ensure that operation is stable even at *high duty cycles*. Compact size makes installation a breeze.

Major features include:

- 50 watts output; three RF output power settings.
- 1 call channel and 60 regular memory channels plus 6 scan edge memory channels. 2 scratch pad memories store the previous duplex or simplex transmit frequencies for instant recall.
- Alphanumeric notes of up to 6 characters may be displayed on memory channels instead of the frequency.
- Automatic memory channel advance to enhance the programming process.
- Optional tone squelch and pocket beep functions allow you to send and receive alphanumeric messages up to 6 characters (UT-85 required)
- Optional tone scan when you do not know the tone frequencies (optional UT-85 required).
- Remote control microphone and DTMF Remote Control (optional UT-101 required).

IC-281H
$488.95

Dual Receive

HRO Discount Price 281-$394.95

IC-481H
$665.95
Suggested List Prices

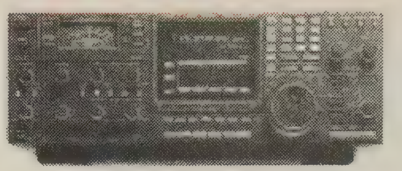
The IC-281H 2 meter transceiver also has 440 MHz receive capability and the IC-481H 440 MHz transceiver also receives 2 meters. This enables full duplex, crossband operation between the 2 meter and 70 cm with crossband repeat from 440 MHz to 2m. A DATA jack connects a TNC directly to the modulation unit for up to 9600 bps packet.

Features include:

- 50 watts output; three RF output power settings.
- 50 regular memory channels store frequency, offset, tone, duplex shift direction. 10 scratch pad memories store 10 previous transmit frequencies for instant recall.
- Built-in pager and code squelch functions.
- Automatic memory channel advance to enhance the programming process.
- Optional tone scan when you do not know the tone frequencies (optional UT-85 required).
- Multiple scan functions: programmed, priority watch, memory skip.
- Optional voice synthesizer (optional UT-66 required).
- Auto power off function.

ICOM

RECEIVERS



IC-R9000

$6825.00

Suggested List Price—Call for Quotes

Notice: Federal and State Government Agencies and Communications Customers Only

Icom's top of the line receives 100 kHz to 1999.8 MHz. Eleven separate bandpass filters use GaAs Fets for VHF and UHF bands. All modes include LSB, USB, CW, AM, FM, WFM (wide-FM), FSK.

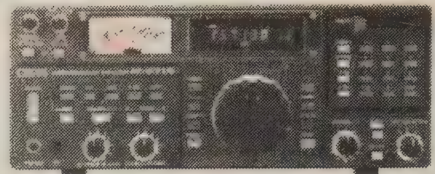
The receiver has Icom's unique, state-of-the-art multifunctional CRT display with spectrum scope. The display provides information on the status of the radio as well as the incoming signals.

The CRT display shows memory contents, dual clocks, weekly and daily timers, and frequency information of the dual VFO's. The display doubles as a spectrum scope showing a maximum of ±100 kHz. Dynamic range is 60 dB and sensitivity is approximately .63μV.

1000-channel memory stores mode, frequency, and tuning increments. Multiple scanning functions: program scan, memory scan, selected memory scan, selected memory mode scan, priority scan, and voice scan control. Direct keyboard entry; Notch filter and IF shift.

24 Hour FAX Order Numbers

Anaheim	714-533-9485
Atlanta	770-263-9548
Burbank	818-842-5283
Denver	303-745-7394
Oakland	510-534-0729
Phoenix	602-242-3481
Portland	503-684-0469
New Castle	302-322-8808
Salem	603-898-1041
San Diego	619-560-1705
Sunnyvale	408-736-9499
Woodbridge	703-494-3679



IC-R71A

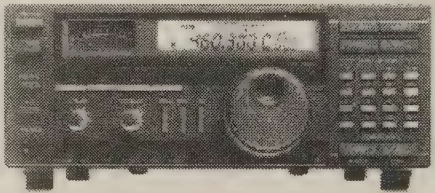
$1440.00

Suggested List Price – Call for Quotes

This versatile, multifunction receiver was built for superior performance. It has an RF preamp, 100 dB dynamic range, selectable AGC, and tuning control or keyboard frequency selection.

Other features include:

- Modes: USB, LSB, AM, FM, RTTY and optional FM.
- Covers 100 kHz to 30 MHz.
- 32 memory channels.
- Programmed, memory and mode scan functions.
- Dual VFO's with three tuning rates and keyboard frequency entry.
- Adjustable IF notch filter & noise blanker.
- Built-in preamplifier and attenuator.
- Optional accessories: Remote control RC-11; Voice synthesizer EX-310.



IC-R7100

$1850.00

Suggested List Price – Call for Quote

This VHF / UHF receiver provides continuous coverage from 25 to 2000 MHz. 800 MHz blocked except for Government approved agencies and communications customers only.

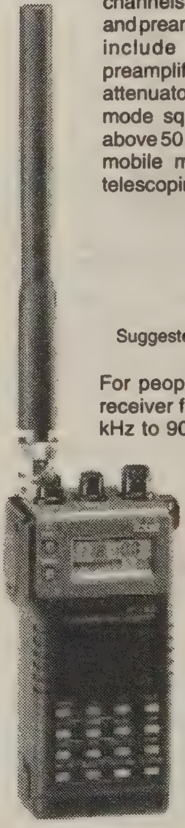
Features include: all mode capability (SSB, AM, FM and WFM); dial and keyboard entry tuning; 900 numbered memories; multiple scanning capabilities; new window scan; built-in clock and timer operations; optional TV receive capability.

IC-R100

$850.00

Suggested List Price—Call for Quotes

This is a great full-coverage receiver for mobile use. With FM, FM wideband and AM modes and frequency coverage of 100 kHz to 1.8 GHz (800 MHz Blocked), the IC-R100 tunes in all frequencies of interest. It has scanning, memory and priority features to locate stations quickly. 100 memory channels store mode, RF attenuator and preamplifier setting. Other features include a 24 hour clock, 15dB preamplifier for 50-905 MHz, 20 dB RF attenuator, multiple tuning steps, all-mode squelch, AFC for frequencies above 50 MHz, automatic noise limiter, mobile mounting bracket, wire and telescoping antennas.



IC-R1

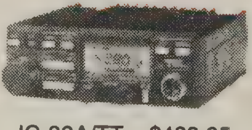
$577.95

Suggested List Price – Call for Quotes

For people on the go, this compact receiver fits in a pocket. It covers 50 kHz to 905 MHz (800 MHz blocked) and receives AM, FM and FM wideband signals. To help find your favorite stations, there are 100 memories and a number of scanning features. Scan a frequency range or memories. With the memory skip function, only channels of interest will be searched. With the built-in timer, the IC-R1 will turn on or off at a specified times. The IC-R1 uses most of the same accessories as the IC-2S series handhelds.

Icom Close-Out Specials

IC-03AT
$326.95



IC-38A/TT ... $489.95

IC-AHB32	$50.95
IC-BA10	$8.95
IC-BP120	$23.95
IC-EX309	$4.99
IC-HM9L	$47.95
IC-HS10SB	$45.95
IC-UI9	$67.95

IC-3SAT
$339.95

Dual -Band Handhelds

HRO
Discount Price
$499.95

Now with BP-180 Battery

IC-Z1A
2m / 70 cm

Once again Icom produces a first in the amateur radio world. This dual band handheld (2m / 70 cm) has a detachable control panel. Better than a speaker-mike, it has a fully functional display of all operating conditions (including band and frequencies) and complete control of volume, modes, tuning, scan, band selection, ON/OFF and PTT. It is backlit for night use.

An alligator clip comes with this radio. Clip the main body to your belt or put it in your pocket or purse. For mobile operation, it can be easily positioned so it won't interfere with driving.

The alphanumeric display shows up to 6 characters for quick, easy memory channel identification. An EPROM prevents loss of memory information when your batteries die.

Other features include:

- Alphanumeric message and paging to transmit and receive up to six characters (using DTMF tones) as a simple message pager.
- A total of 104 memories (46 regular and 6 scan edge per band) may be displayed by frequency, channel number and alpha name.
- Long operating times between charges. Multiple power saver functions. A battery voltage readout helps plan ahead.
- V/V, U/U or V/U main/sub band operation.
- Simultaneous receive on both bands.
- Accepts 4.5 to 16 VDC external power.
- Full crossband duplex operation.
- CTCSS encode standard (optional decode UT-93 required).
- Auto repeater offset / shift function.

HRO
Discount Price
$429.95

IC-W31A
2m / 70 cm

Now with BP-180 Battery

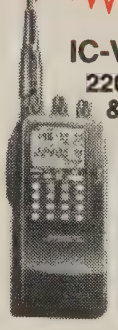
This slim 2m/70cm handheld transceiver is ultra compact yet has a large display. It combines simple operation with dependable, rugged construction.

Features include:

- 5 watts maximum output; 3 selectable power levels.
- 40 memory channels.
- Channel indicate function displaying memories only.
- Wide operating voltage from 4.5 to 18 VDC.
- LCD backlit display with 5 second timer function.
- 10 DTMF memories.
- Multiple scanning functions.
- Automatic repeater selection.
- Electric volume switch for controlling audio level from an optional speaker mike.

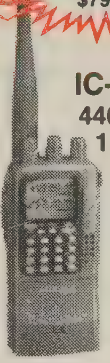
HRO
Discount Price
$499.95

IC-V21AT
220 MHz & 2m



HRO
Discount Price
$799.95

IC-X21AT
440 MHz & 1.2 GHz



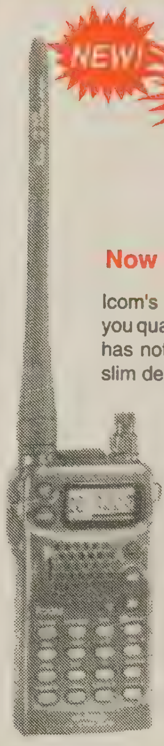
Features for **all three models** include:

- Receive 2 signals on the same band plus full crossband operation.
- Battery capacity indicator.
- Remote control from an optional HM-75 speaker-microphone.
- 70 channels. 32 memories and 1 call channel store repeater information plus 2 scan edge channels for each band.
- Built-in pocket beep, pager code squelch and tone squelch.
- 4 DTMF memory channels.
- 5 output power levels.
- Separate speaker control for directing one or both bands to an external speaker.
- Key for quick access to often-used functions.

2 Meter Handhelds

NEW!

HRO
Discount Price
$249.95



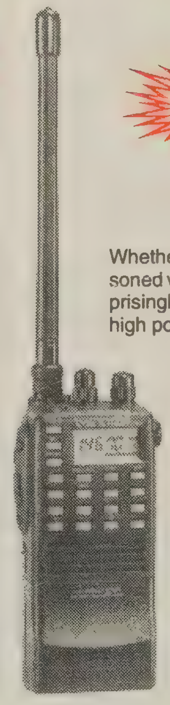
IC-T22

Now with BP-180 Battery

Icom's new 2m handheld brings you quality and prestige a price that has not been available before. Its slim design fits well into the hand.

Features include:

- Easy to use.
- Superior receive audio.
- Wide-band reception.
- 40 memory channels.
- New "log-in" feature automatically memorizes transmitted frequencies.
- Runs directly from 12V for 5 W output.
- Battery pack compatible with the IC-Z1A and IC-W31A.



7-Watt Version
Available

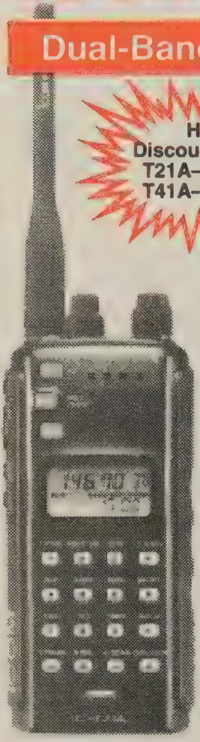
IC-2GXAT

Whether you are a beginner or seasoned veteran, you will like the surprisingly simple operation of this high power 2-meter handheld.

Features include:

- Output 7 W with BP-132A battery or 13.5 VDC.
- 40 repeater-oriented memory channels and one call channel.
- Programmed or memory scan with skip function.
- Tone scan function.
- Squelch monitor.
- Automatic power saver.
- Lighted display with 5 second timer.
- DTMF redial and five auto dial memories.
- Automatic repeater function.
- Channel number indication.
- Subaudible tone encoder, tone squelch and pocket beep. Optional pager and code squelch (UT-49 required)

Dual-Band Receive



HRO
Discount Prices
T21A–$339.95
T41A–$359.95

IC-T21A
2m / 70 cm

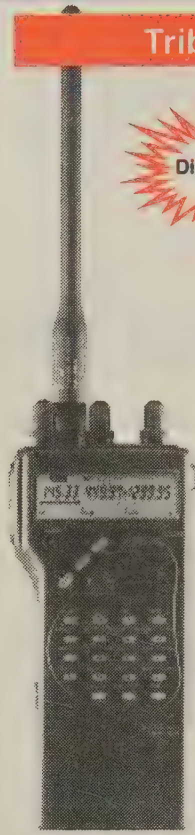
IC-T41A
70 cm / 2m

The IC-T21A is a transceiver on 2 meters and a receiver on 440 MHz. The IC-T41A is a transceiver on 440 MHz and a 2 meter receiver. You have full cross band operation between 2 m and 70 cm.

Features include:

- 2 band receiving capability plus full duplex cross-band operation.
- High speed scan functions (33 channels per second).
- 100 memories with repeater memory.
- 5 DTMF memory channels.
- 5 output power levels and 8 tuning steps. 6 watts with 13.5 VDC.
- 24-hour system clock.
- Dial select for quick frequency change.
- Tone scan capability to access repeaters with an unknown tone frequency.
- Built-in pager, code squelch, pocket beep and tone squelch.
- Power on/off timers and auto power off function.
- Optional speaker microphone with remote control capability.

Triband



HRO
Discount Price
$729.95

IC-D1A

The world's first and only triband FM handheld transceiver operates on 2 meters, 70 cm and 1.2 GHz, and delivers performance comparable to three base units.

All three bands are factory included, not optional. All three receive simultaneously. Transmit on one while receiving on either or both of the others.

This moves amateur radio's FM handhelds into the 21st century!

Features include:

- Three handhelds in one. Covers 144-148 MHz, 440-450 MHz and 1240-1300 MHz.
- Receives 138-174 MHz covering the NOAA weather and public service frequencies.
- Simultaneous three-band monitoring of all VHF and UHF channels and repeaters. Switch to dual or single band as desired.
- Separate controls and functions for each band.
- 2 watts output on 2 m and 70 cm; 5 watts with the optional BP-103. Output on 1.2 GHz is 1 watt.
- 78 memories: 26 per band. All memories store any related band frequency, TX offset, PL tone and digital squelch settings.
- Four DTMF autodialing memories.
- All PL tones.
- 24-hour clock with on/off timers.

Handheld Batteries / Chargers

Model	Volts	Rating mAh	Wall Charger	Desk Charger	HRO Battery Prices
BP3	8.4	270	BC-25u	BC-35	$52.95
BP-7	13.2	450	BC-16u	BC-35	$97.95
BP-8	8.4	800	BC-16u	BC-35	$96.95
BP-70	13.2	270	BC-16u	BC-35	$75.95
BP-81	7.2	110	BC-74A	BC-72	$59.95
BP-82	7.2	300	BC-74A	BC-72	$59.95
BP-83	7.2	600	BC-74A	BC-72	$72.95
BP-84	7.2	1000	BC-74A	BC-72	$96.95
BP-85	12	340	BC-74A	BC-72	$109.95
BP-101	7.2	700		BC-79*	$75.95
BP-102	7.2	1200		BC-79*	$99.95
BP-103	12	600		BC-79*	$110.95
BP-111	7.2	400	BC-74A	BC-80	$68.95
BP-112	7.2	700	BC-74A	BC-80	$68.95
BP-113	7.2	1200	BC-74A	BC-80	$95.95
BP-114	12	400	BC-74A	BC-80	$112.95
BP-121	7.2	400	BC-77A	BC-79*	$62.95
BP-122	7.2	700	BC-77A	BC-79*	$68.95
BP-123	7.2	1200	BC-77A	BC-79*	$92.95
BP-124	12	400	BC-77A	BC-79*	$116.95
BP-131	7.2	900		BC-79*	$84.95
BP-132	12	600		BC-79*	$109.95
BP-132A	12	600	BC-77A	BC-79*	$99.95
BP-157	7.2	900	BC-77A	BC-79*	$68.95
BP-160	7.2	700	BC-77A	BC-79*	$53.95
BP-171	4.8	700	BC-74A	BC-79*	$66.95
BP-172	4.8	650	BC-74A	BC-79*	$73.95
BP-173	9.6	600	BC-74A	BC-79*	$109.95

*Adapters are required. See Adapter Table.

BC-79 Adapters

Adapter	For Batteries	HRO Price
AD-22	BP-101, BP-102, BP-103	$46.95
AD-25	BP-131A, BP-132A, BP-157A	$45.95
AD-26	BP-121, BP-122, BP-123, BP-124	$14.95
AD-27	BP-100, BP-130	$14.95
AD-28	BP-131, BP-132	$13.95
AD-51	BP-171, BP-172, BP-173	$14.95

We Accept

VISA MasterCard DISCOVER

Icom Handhelds

Model	Frequency	Power Supply	Power Out Transmit*	Current Transmit	Drain Receive	Sensitivity	Height in(cm)	Width in(cm)	Depth in(cm)	Weight oz(g)	Sugg. List
IC-D1A	TriBand (see text)	13 VDC	2/2/1 W	1.9 A	210 mA	<.16µV/12dB	5.7(14.4)	2.3(5.8)	1.9(4.8)	20(635)	$987.95
IC-2GXAT	144-148 MHz†	13.5VDC	3.0/1.0 W	1.8 A	250 mA	<.18µV/12dB	4.9(12.5)	2.2(5.7)	1.4(3.5)	13(365)	$359.95
IC-T21A	2m/440	13.5 VDC	6.0/.15 W	1.8 A	160 mA	<.16µV/12 dB	4.4(11.1)	2.1(5.4)	1.4(3.5)	11.1(315)	$455.95
IC-T22	2m	13.5 VDC	5.0/.5 W	1.4 A	150 mA	<.16µV/12 dB	4.8(12.2)	2.3(5.8)	1.1(2.7)	10.9(310)	$340.95
IC-T41A	440/2m/440	13.5 VDC	6.0/.15 W	1.8 A	160 mA	<.16µV/12 dB	4.4(11.1)	2.1(5.4)	1.4(3.5)	11.1(315)	$472.95
IC-V21	2m/222 MHz	7.2 VDC	1.5 W	1.5 A	200 mA	<.16µV/12 dB	4.9(12.5)	2.2(5.7)	1.4(3.5)	14(390)	$783.95
IC-W31AT	2m/440†	13.5VDC	5.0/.5 W	2.5 A	250 mA	<.18µV/12dB	4.3(11.0)	2.2(5.7)	1.1(2.7)	13(345)	$513.95
IC-X21AT	440/1200 MHz	13.8VDC	5.0/1.0 W	1.6/0.9 A	180 mA	<.16µV/12dB	4.9(12.5)	2.2(5.7)	1.4(3.5)	13(400)	$796.95
IC-Z1A	2m/440††	13.5VDC	5/5 W	1.5 A	210 mA	<.16µV/12dB	4.9(12.5)	2.2(5.7)	1.4(3.6)	13.4(380)	$600.95
IC-12GAT	1.2 GHz	13.8VDC	1 W	.9 A	250 mA	<.25µV/12dB	5.1(13)	2.6(6.5)	1.4(3.5)	18(500)	$505.95

* Power with standard battery pack † Frequency coverage 138-174(receive only outside amateur bands), 440-450 MH †† Frequency coverage 136-174 MHz and 400-470 MHz (receive only outside amateur bands)

Icom Handheld Accessories

OPTIONS		2 METERS										DUAL and TRI BAND									440 MHZ						1200 MHZ	220 MHZ			
		2SAT	2GAT	2GXAT	2SRA	T21AT	T22	2IA	02AT	P2AT	2AT	24AT	D1A	V21AT	W2A	W21AT	W31A	X21AT	X2A	Z1A	4SAT	4GAT	4SRA	4IA	04AT	P4AT	12GAT	3SAT	03AT	P3AT	HRO Price
BATTERY PACKS	BP-3		*						*		std											*			std		*		std		$52.95
	BP-7		*						std													*			*		*		*		$97.95
	BP-8		*						*		*											*			*		*		*		$96.95
	BP-70		std						*													std			*		std		*		$75.95
	BP-81	*			*							*			*				*		*		*					*			$55.95
	BP-82	*			*							std			*				*		*		*					*			$59.95
	BP-83	*			*							*			*				*		*		*					*			$72.95
	BP-84	*			std							*			std				std		*		std					*			$96.95
	BP-85	*			*							*			|				*		*		*					*			$109.95
	BP-101												*			*															$75.95
	BP-102												*			*															$99.95
	BP-103												*			*															$110.95
	BP-111									std																std				std	$68.95
	BP-112									*																*				*	$68.95
	BP-113									*																*				*	$95.95
	BP-114									*																*				*	$112.95
	BP-121							std																std							$62.95
	BP-122							*																*							$68.95
	BP-123							*																*							$92.95
	BP-124							*																*							$116.95
	BP-131																	*													$84.95
	BP-131A													*																	$84.95
	BP-132																	*													$109.95
	BP-132A			*										*																	$99.95
	BP-157																	*													$68.95
	BP-157A													*																	$68.95
	BP-159					*																									$25.95
	BP-160			*																											$53.95
	BP-171						*										*			*											$66.95
	BP-172						*										*			*											$73.95
	BP-173						*										*			*											$48.95
BATTERY CASES	BP-4		*						*		*											*			*		*		*		$25.95
	BP-90	*			*							*			*				*		*		*					*			$25.95
	BP-100												*			*															$25.95
	BP-110									*																*				*	$19.95
	BP-120							*																*							$25.95
	BP-130												*					*													$25.95
	BP-130A			*										*																	$25.95
	BP-170						*										*			*											$25.95
	CM-12		*						*													*			*		*		*		$29.95
CABLES	CP-1		1						1		2											1			1		1		1		$21.95
	CP-11		3						*		2											3			*		3		*		$26.95
	CP-12	*								*		*					*			*	*					*		*		*	$29.95
	CP-13			*	*								*	*	*	*		*					*								$29.95
	CP-13L				*			*							*				*				*	*							$29.95
	OPC-254	*								*		*					*			*	*					*		*		*	$9.95
	OPC-288			*	*			*						*	*			*	*				*	*							$13.95
DC -CONV	DC-1										*																				$29.95
SPEAKER MICS	HM-46	*		*					*	*	*	*		*		*	*	*		*	*				*	*		*	*	*	$50.95
	HM-46L		*					*														*		*			*				$50.95
	HM-54	*		*					*	*	*	*		*		*	*	*		*	*				*	*		*	*	*	$60.95
	HM-55			*										*				*													$115.95
	HM-65				*								*		*	*			*				*								$55.95
	HM-70				*								*		*	*			*				*								$60.95
	HM-75													*		*	*	*		*											$70.95
HEADSET	HS-60				*								*		*				*				*								$71.95
	HS-51	*	*	*				*	*	*		4		*		*		*			*	*		*	*	*	*	*	*	*	$70.95
	HS-85																*			*											CALL
MOUNTING BRACKETS	MB-24		*																			*					*				$29.95
	MB-25		*																			*					*				$35.95
	MB-30	*		*	*					*		*	*	*	*	*	*	*	*	*	*		*			*		*		*	$19.95
INTERNAL OPTIONS	UT-40		*																			*									$60.95
	UT-49	*		*																	*							*			$149.95
	UT-50	std										*									*							*			$154.95
	UT-63													*		*		*													$90.95
	UT-70												std																		$145.95
	UT-71												*																		$70.95
	UT-72							std																std							$55.95
	UT-86			*																											$50.95
	UT-93																			*											$70.95
	UT-94																*														CALL
OTHER OPTIONS	AD-12		*																			*					*				$129.95
	AD-20				*										*				*				*								$129.95
	BA-10								*																*				*		$9.95
	BA-11	*			*							*			*				*		*		*					*			$8.95
	BA-12	*																			*							*			$21.95

1 For charging BP-3, BP-5A, BP-7, BP-8, BP-70 2 Optional DC-1 is required 3 Optional AD-12 is required 4 Except for full duplex operation

KENWOOD

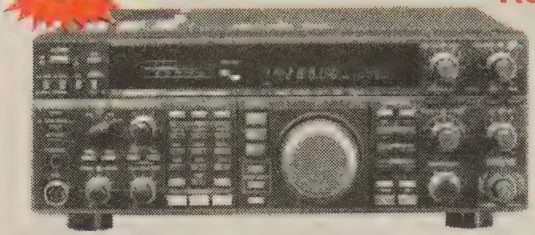
NEW!

It's Revolutionary

TS-870

$3199.95
Suggested List Price

HRO
Discount Price
$2699.95



DSP at the IF stage is now a reality with Kenwood's new TS-870S HF transceiver. This new design uses state-of-the-art DSP chips to provide receiving enhancement that brings signals out of the noise. Imagine over 100 dB of noise reduction with no signal loss! Imagine CW bandwidth adjustable to 50 Hz! Advanced speech processing with transmit equalization will make you stand out in pile-ups! Complete computer operation and control of the TS-870S is possible with MS windows software included and a built-in RS-232C port. Enjoy future technology now with the TS-870S.

Major features include:

- IF stage digital signal processing.
- Multi-function digital filtering (no optional filters required).
- Dual-mode noise reduction.
- Beat canceler and automatic notch filter.
- Variable AGC.
- Selectable voice equalizer (SSB & AM). Speech processor. Voice synsthesizer unit option (VS-2).
- Selectable transmit equalizer.
- High speed (57.6 kbps) computer control with MS Windows® software included.
- Built-in RS-232C port.
- Full band scan, programmable band scan, group scan, memory scan with memory channel lockout.
- 100 watts output on SSB, CW, FSK, and FM, 25 watts on AM.
- 100 kHz-30 MHz general coverage receiver.
- Full function CMOS Super Keyer II.
- Built-in automatic antenna tuner (TX & RX).
- Two selectable antenna terminals with SO-239 connectors.
- External receiver antenna output jack.
- Dual VFO with 100 channel memories plus 5-channel quick memory.
- Easy-to-use menu system for quick setting of functions.
- Built-in tone encoder.
- VOX and QSK.
- High-quality 60-second digital recording unit option (DRU-3).

HRO
Discount Prices
850S–$1599.95
AT–$1799.95

TS-850S

$1949.95

TS-850S / AT

$2149.95
Suggested List Prices

This HF transceiver is a 12 volt high performance transceiver with a general coverage receiver of the TS-950SDX caliber. It is available with or without the internal automatic antenna tuner.

Major features include:

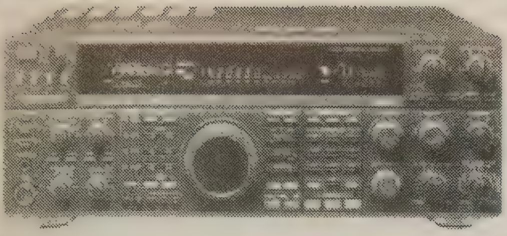
- 160-10 meter amateur operation (MARS modifiable).
- General coverage receiver 150 kHz - 30 MHz.
- SSB IF slope tuning with independent High & Low Cut control.
- IF notch filter. Audio filter.
- Optional external AC power supply PS-52.
- Full and semi break-in CW. Fine tuning on CW.
- Speech processor, RIT / XIT, keyer.
- 10 Hz dial resolution.
- 100 memory channels store receive and transmit frequencies.
- Keyboard frequency entry.
- Dual mode noise blanker; RF attentuator; switchable AGC.
- Optional DSP-100 Digital Signal Processor converts audio signals to digital information for cleaner SSB and CW signals.

Kenwood HF Specifications

		Power Supply		Current Drain		Power											
Model	Receiver Frequency Range	50/60 Hz AC	DC	Xmit	Rec	AM	FM	SSB	CW	FSK	FSK Shift	Mike Z	Receive Circuitry	Sensitivity	RIT / XIT	Notch Filter	Audio
TS-950S	100 kHz - 30 MHz	120/220/240 V		700 W max	80 W	40	150	150	150	150	170 Hz	500 Ω-50 kΩ	Quadruple Conversion	<.2µV SSB,CW,FSK	±9.99 kHz	> 45 dB	1.5 W
TS-870S	101 kHz - 30 MHz					25	100	100	100	100		501 Ω-50 kΩ					
TS-850S	100 kHz - 30 MHz		13.8 V	20.5 A	2 A	40	100	100	100	100	170 Hz	500 Ω-50 kΩ	Triple Conversion	<.2 µV SSB, CW, FSK	±9.99 kHz		1.5 W
TS-450S	500 kHz - 30 MHz		13.8 V	20.5 A	2.1 A	40	100	100	100	100		500 Ω-50 kΩ	Triple Conversion	< .25 µV	>±1.1 kHz	20 dB	1.5 W
TS-140S	500 kHz - 30 MHz		13.8 V	20 A	1.5 A	40	50	100	100		-	500 Ω-50 kΩ	Double Conversion	< .25 µV at 10 dB	±1.2 kHz	-	1.5 W
TS-690S	500 kHz - 30 MHz & 6m		13.8 V	20.5 A	2.1 A	40†	100#	100#	100#	100#	-	500 Ω-50 kΩ	Triple Conversion	<.25 µV at 10 dB**	>±1.1 kHz	20 dB	1.5 W
TS-50S	500 kHz - 30 MHz		13.8 V	20.5 A	1.5 A	25	100	100	100			600 Ω	@	< .25 µV	>±1.1 kHz		2 W
TS-60S	50 - 54 MHz		13.8 V	20.5 A	2.0 A	25	90	90	90			600 Ω	@	< .25 µV			2 W

* Input Power ** 6m <.16µV at 10 dB †20W Out at 6m # 50 W Out at 6m @ Double Conversion SSB, CW, AM; Triple FM

HF TRANSCEIVERS



TS-950SDX

$4799.95

Suggested List Price

HRO Discount Price $4094.95

The TS-950SDX is Kenwood's top-of-the line HF transceiver. The state-of-the-art design includes Digital Signal Processing (DSP), high power MOSFET-type finals, simultaneous dual-receive and much more.

The major features include:

- 100 kHz - 30 MHz general coverage, quadruple conversion receiver with 100 memories.
- 160–10 meter amateur operation (MARS modifiable).
- High power output utilizing rugged MRF150MP finals.
- Built-in automatic antenna tuner 160 –10 meter.
- Built-in dual digital VFO's, illuminated keyboard, memory channel / VFO control, and RIT / XIT.
- Multiple scan functions and direct band key access.
- Built-in AF digital filter, multi-drive bandpass filter
- Built-in dual noise blankers, IF filters, selectable IF filter in memory, 4-position RF attenuator, & auto-AGC.
- CW features include full and semi break-in electronic memory keyer, variable pitch control and selectable CW filters.
- Easy split-frequency operation.
- Menu-driven control of various functions.
- Includes RM-1 remote keyboard.
- Separate S-meter and speaker output for the sub-receiver.
- Front panel control of DSP.
- Fine tune in 1 Hz steps.
- Optional DRU-2 voice memory device available for SSB contest use.
- 500Hz CW filter in sub-receiver.

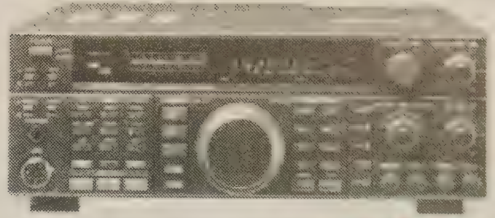
TS-450S

$1439.95

TS-690S

$1759.95

Suggested List Prices

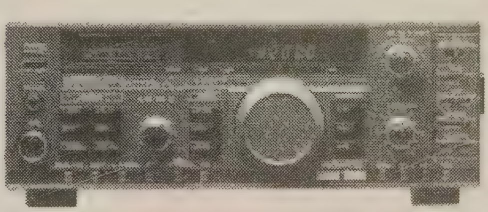


HRO Discount Prices
450SAT–$1299.95
690S–$1449.95

These compact models give you competition class reception and 100W transmission capabilities across all nine HF bands. The TS-450SAT incorporates an automatic antenna tuner for easy antenna coupling. The TS-690S has the same features as the TS-450S plus the 50 MHz band.

The major features include:

- 500 kHz - 30 MHz general coverage receiver on TS-450S plus 50-54 MHz on TS-690S (MARS modifiable).
- 160–10 meter amateur operation on TS-450S; plus 6 meters on TS-690S.
- All modes USB, LSB, CW, AM, FM and AFSK.
- Advanced Intercept Point (AIP) for improved dynamic range.
- Speech processor.
- Tunable AF notch filter, dual-mode noise blankers and RF attenuator.
- Dual VFO's; RIT / XIT; IF shift and selectable IF filter.
- Full break-in for CW with CW reverse.
- Multiple filter options selectable from the keypad.
- 10 Hz dial resolution.
- 100 memory channels.
- Multiple scanning functions.
- Switchable AGC (slow or fast).
- Optional internal automatic antenna tuner for 80–10 meter operation.
- 100% duty cycle transmitter.



TS-140S

$1079.95

Suggested List Price
Call for Quote

With its price and features, the TS-140S is the perfect back-up radio or first novice rig. It provides SSB, CW, AM and FM operation on all HF amateur bands. This compact and affordable radio can be used for mobile as well as base operation.

Features include: 500 kHz - 30 MHz general coverage receiver; independent dual VFO's.; multiple scanning capabilities; 10 of the memories store transmit and receive frequencies independently. Allows for repeater operation; speech processor; CW full break-in.

HRO will ship your products quickly from the store nearest you. Orders greater than $100 receive free UPS Brown shipping.

HF and 6 meter Mobiles

HRO
Discount Prices
TS-50S–$1099.95
TS-60S–$999.95

TS-50S
$1294.95

TS-60S
$1209.95
Suggested
List Prices

Kenwood's compact TS-50S is for HF and the TS-60S is for 6 meters only. They feature all-mode operation (AM, CW, SSB and FM) with 100W (90W TS-60S) on CW / SSB / FM and 25 watts on AM. The general coverage receiver on the TS-50S covers 500 kHz to 30 MHz.

Both models have RIT, IF shift, noise blanker and scanning functions. They feature 2 VFO's and 100 memories. The compact size and weight makes them the perfect mobile rigs.

Features include:

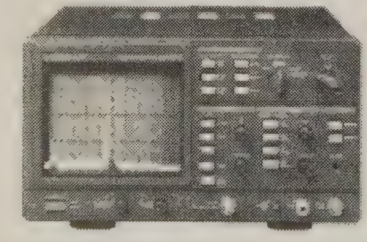
- TS-50S has a 500 kHz–30 MHz general coverage receiver (not available on TS-60S).
- DDS with "Fuzzy" control logic.
- Speech processor.
- Weighs only 6.4 pounds.
- Full break-in/semi break-in.
- Convenient menu programming.
- All mode squelch and CTCSS encode built-in (TS-60S).
- Automatic gain control (slow / fast).
- IF shift and TF set.
- Computer control (optional).

TC-50 Travel Case

Kenwood's travel case was custom designed to carry the TS-50S, AT-50, paddles, power supply, and other accessories. Built out of durable materials and backed by a lifetime warranty, this case will expand your operating enjoyment. **Suggested List $89.95**

Station Monitor

The station monitor in Kenwood's accessory line monitors both transmit and receive signals on the TS-950S and TS-850. The SM-230 can be used to monitor only your transmitted signal on other Kenwood and other manufacturer's HF rigs.



HRO
Discount Price
$1029.95

SM-230
$1169.95
Suggested List Price

The SM-230 station monitor is a peripheral to the TS-950 HF transceiver. Using a 6 inch square CRT, it is a multi-function monitor scope with oscilloscope, band scope, monitor scope, RTTY cross pattern observation, and tone generator. Its frequency range is 1.8 - 150 MHz.

Receiver

R-5000
$1179.95
Suggested List Price

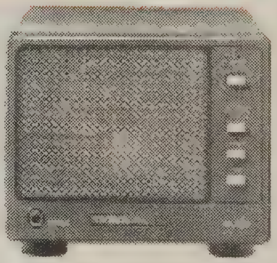
HRO
Discount Price
$1019.95

This competition class communications receiver has every conceivable feature required by the serious shortwave listener. It is designed to receive all modes (LSB, USB, AM, CW, FM) from 100 kHz to 30 MHz. With the optional VC-20 converter unit, coverage is extended to include 108–174 MHz. (VC-20 installed by dealer.)

Major features include:

- 10 Hz step dual VFO's for SSB, FSK and CW. 100 Hz for AM and FM. VFO's operate independently.
- Dual high and low impedance antenna terminals.
- 100 memories store frequency, mode and antenna selection.
- Keyboard frequency selection for direct entry.
- 102 dB dynamic range.
- Memory and programmable band scan.
- Dual 24 hour clocks with timer.
- Built-in AC power supply. 110 VAC only; UL approved.
- 12 VDC operation with the optional DCK-2.

Speakers



Kenwood has a number of external speakers for HF and VHF / UHF mobile and base stations. The top of the line speakers have built-in audio filters.

SP-950

The **SP-950** is the base station speaker with cabinet styling to match the TS-950S and TS-950SDX. The speaker can select two radio inputs and has high and low filter switches. The high filter switch attenuates frequencies above 3.0 kHz and 1.3 kHz. The low switch attenuates frequencies below 400 Hz. The speaker has a headphone jack on the front panel and a line output for packet, RTTY or SSTV. **Suggested List Price $134.95**

Kenwood has added another speaker to especially match the TS-450S and TS-690S. It is the **SP-23** speaker. **Suggested List Price $87.95**

The **SP-31**, designed for the TS-850, selects one of two audio inputs, has high and low filters and a separate headphone jack. **HRO Price $94.95**

There are two mobile speakers, the **SP-41** (**$48.95**) and the **SP-50B** (**$52.95**). The SP-41 is a small square speaker and the SP-50B is a thin rectangular speaker. Both are provided with an assortment of mounting accessories for mobile use.

HF ACCESSORIES

Power Supplies

PS-31

The PS-31 power supply is designed especially for the TS-790A satellite transceiver. The supply is for 110 VAC only and provides 13.8 VDC output. The rating is 20 A at a 25% duty cycle and 15 A at a 50% duty cycle. The supply may also be used for operation of HF radios. The power connector matches most all the other Kenwood HF radios. **Suggested List Price $219.95**

PS-52

The PS-52 power supply has been designed specifically to power the TS-850. The PS-52 is a heavy duty supply that will operate all modes of the TS-850 for the rated periods of time. The supply provides 13.8 VDC at 22.5 A. The PS-52 has a cooling fan and protection circuits. **Suggested List Price $289.95**

PS-53

The PS-53 power supply was designed specifically to power the TS-450S and TS-690S. The PS-53 is a heavy duty supply that will operate all modes for the rated periods of time. The supply provides 13.8 VDC at 20.5 A. The PS-53 features a cooling fan and protection circuits. **Suggested List Price $269.95**

Antenna Tuners

AT-450

The AT-450 automatic antenna tuner can be an option for the TS-450S and TS-690S. The installation can be easily accomplished with only a screwdriver. The tuner only works with the TS-450S and TS-690S and covers 80–10 meters. **Suggested List Price $249.95**

AT-50

A fully automatic antenna tuner to use with the TS-50 and other 100 watt HF transceiverws. Use for mobile or fixed operation. Get accurate tuning by pressing the AT TUNE key on the TS-50. Can be installed remotely. **Suggested List $369.95**

AT-300

The AT-300 is a specialized antenna tuner that can be used with the TS-450S for mobile or marine operation. It will automatically tune a whip or random length of wire. **Suggested List Price $689.95**

Kenwood HF Accessories

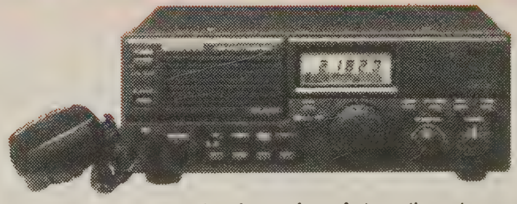
Option	Model	950 SDX	940S	930S	850S	870S	450S 690S	440S	430S	140S 680S	50S	60S	HRO Discount Price
Microphone													
Hand	MC-43S	std	std	std	std		std	std	std	std	*	*	$59.95
Hand	MC-47										std	std	$59.95
Desk	MC-60A	*	*	*	*		*	*	*	*	*	*	$139.95
Desk	MC-80	*	*	*	*		*	*	*	*	*	*	$109.95
Desk	MC-85	*	*	*	*		*	*	*	*	*	*	$249.95
Desk	MC-90	*											TBD
Filters													
250Hz CW	YG-455CN-1	*	*	*	*		*						$159.95
500Hz CW	YG-455C-1	std	*	*	*		*			*			$149.50
500Hz CW	YK-455C-1						*			*			$104.95
6kHz AM	YK-88A-1		*	*									$99.95
500Hz CW	YK-88C							*	*				$129.95
500Hz CW	YK-88C-1	std	*	*	*		*						$129.95
270Hz CW	YK-88CN							*	*				$129.95
270Hz CW	YK-88CN-1	*			*		*						$129.95
1.8kHz SSB	YK-88SN		*					*	*				$129.95
2.4kHz SSB	YK-88S-1						*						$129.95
1.8kHz SSB	YK-88SN-1	*			*		*						$129.95
2.4kHz SSB	YK-88S							*					$99.95
500Hz CW	YK-107C										*	*	$129.95
High Stability Oscillator	SO-2	std			*		*				*	*	$169.95
Headphones	HS-5	*	*	*	*		*	*	*	*			$79.95
	HS-6	*	*	*	*		*	*	*	*			$59.95
External Speaker	SP-41							*	*	*			$49.95
	SP-31				*								$99.95
	SP-50B							*	*	*	*	*	$55.95
	SP-23						*						$89.95
	SP-950	*											$139.95
Phone Patch	PC-1A	*	*	*	*		*	*	*	*			$129.95
Voice Synthesizer	VS-2	*			*		*						$69.95
Station Monitor	SM-230	*	*	*	*		*	*	*	*	*		$1,029.95
Antenna Tuner	AT-50										*		$339.95
	AT-300				*		*				*		$629.95
	AT-450						*						$249.95
	AT-850				*								$249.95
Mobile Mount	MB-13										*	*	$55.95
	MB-430						*	*	*	*			$49.95
Power Supply	PS-33						*	*	*	*	*	*	$199.95
	PS-52				*								$279.95
	PS-53						*				*	*	$269.95
Digital Signal Processor	DSP-100				*		*						$619.95
Voice Memory	DRU-2	*			*								$134.95

Marine Radio

TKM-707

$2249.95

Suggested List Price—Call for Quote



The TKM-707 is a high performance SSB radiotelephone designed to meet the stringent demands of the marine market in quality and ruggedness. The TKM-707 utilizes a heavy duty rustproof aluminum chassis and the highest quality parts to maximize performance. The transceiver meets the 27.5 MHz USCG requirements.

Major features include:

- Covers all marine bands from 2 MHz to 27.5 MHz.
- 150 watt RF output.
- General coverage receiver from 500 kHz to 30 MHz.
- 198 memory channels including 195 preprogrammed ITU channels.
- 2128 kHz emergency alarm built-in.
- Dual mode noise blanker.
- All mode operation including SSB and AM.
- Large, multi-function LCD display.
- Multi-scanning features.
- Automatic antenna tuner control function.
- Built-in clarifier.
- Rustproof aluminum chassis and stainless steel screws.

MAT-100

Automatic Antenna Tuner

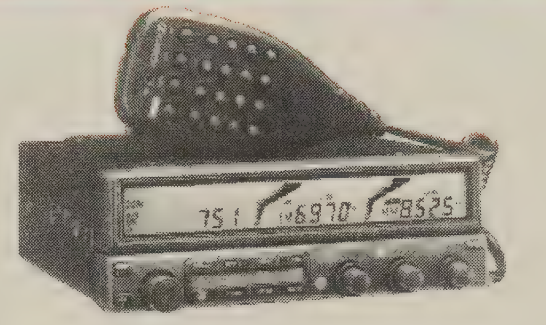
for the TKM-707

$1049.95

Suggested List Price—Call for Quote

KENWOOD

Multi- Band FM Mobiles



TM-642A **$939.95**

TM-742A **$939.95**

TM-942A **$1279.95**

Suggested List Prices

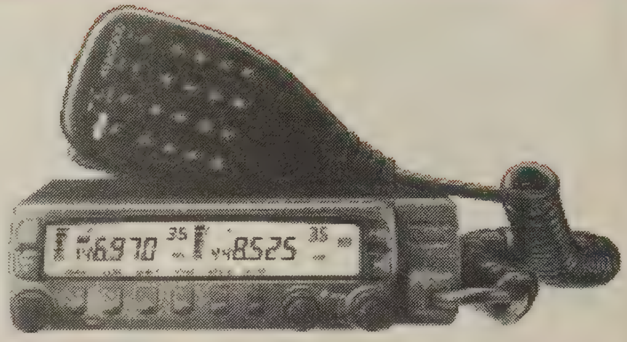
Call for Your LOW HRO DISCOUNT PRICE

This multi-band FM transceiver family has a radio to satisfy the most demanding multi band needs of the mobile radio amateur. The design provides dual band (144 / 440 MHz or 144 / 220 MHz) operation with the capacity to expand to triple band operation by adding optional 28 MHz, 50 MHz, 220 MHz, or 1200 MHz modules.

Major features include:

- Extended 2 meter receive from 118–174 MHz.
- 50 W output on 2 meters and 35 W on 440 MHz.
- The TM-942A covers 2 meters / 440MHz / 1200MHz at 50W / 35W / 10W. The TM-642A covers 144 MHz and 220 MHz at 50 W/25W.
- Multiple scanning modes: band scan, programmable band scan, memory scan, MHz scan, call-VFO-memory scan, call-VFO scan, auto memory scan.
- Built-in DTSS with pager. Built-in CTCSS encode. Decode requires the optional TSU-7.
- Independent receive function with display for each band. Receives all installed units at the same time. Choice of single, dual or triple band operation. Selectable full (triple band) cross-band operation is available.
- 100 memory channels plus a call channel for each band. Each memory stores frequency, tone, CTCSS, step, shift, rev, DTSS and pager information. Each memory will store both transmit and receive frequency for odd offsets.
- Direct frequency input to the VFO using the supplied DTMF microphone.
- S-meter squelch, noise squelch and auto squelch.
- Time-out timer and auto power-off with warning beeper.
- Automatic band change.
- 3- position RF output power control.
- Remote front panel mount kits optional. DFK-3 for interconnecting knob panel to LCD panel, DFK-4 contains 13 foot panel cable, and DFK-7 for 22 foot separation with longer power cord and three audio cables.

Dual-Band Mobiles



HRO
Discount Price
$619.95

TM-733A

$759.95

Suggested List Price

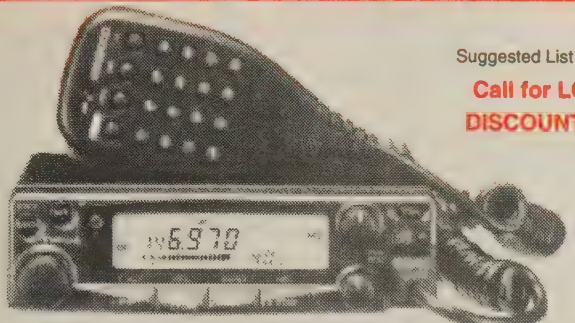
The TM-733A FM dual bander is specially tailored for hassle free mobile communications with a unique "6-in-1" programmable memory. Six entire operating profiles including everything from frequency range to dimmer level can be stored for instant recall. The transceiver is packed with a complement of sophisticated features.

Major features include:

- Dual receive on the same band.
- 50 watts output on 2 meters (144–148 MHz), 35 watts output on 70 cm (438 – 450 MHz).
- 3-position RF output power control.
- 72 memory channels.
- "6-in-1" programmable memory.
- Dual receive available on the same band (VHF+VHF or UHF+UHF).
- Time-operated and carrier operated scan stop modes.
- Built-in DTSS selective calling with page.
- Multi-Function scanning allows band scan, memory scan and even memory channel lockout.
- Incremental MHz key.
- Built-in CTCSS encoder with optional TSU-8 decoder.
- Wireless clone function.
- S-meter squelch.
- Tone alert system with elapsed time indicator.
- Separate speaker terminals for each band (switchable)
- Multifunction DTMF microphone supplied.
- Repeater reverse and offset switch
- Auto repeater offsets (144 MHz).
- Built-in jack for 1200 / 9600 bps packet use.
- AIP (Kenwood's exclusive circuit for enhancing RX performance).
- Optional quick-release kit available as an added antitheft measure.
- ASC (auto Simplex Checker)

VHF/UHF MOBILES

Single-Band FM Mobiles



Suggested List Prices Shown

Call for LOW HRO DISCOUNT PRICES

TM-251A	TM-331A	TM-451A
2 meters	220 MHz	70 cm
$529.95	$539.95	$559.95

These new compact single-band FM transceivers from Kenwood are available for 2 meters, 220 MHz, or 70 cm. The TM-251 also covers the aircraft frequencies on receive.

Major features include:

- TM-251A is for 2 m with a 70 cm receiver; TM-451A is for 70 cm and includes a 2 m receiver.
- Fixed band and same band repeater functions (cross-band duplex).
- 41 multifunction memory channels storing frequency (200 with optional ME-1), repeater offset, CTCSS frequency. Encode built-in. Decode with optional TSU-8.
- 10 DTMF memory (15 digits)
- Automatic offsets on the TM-251.
- Multifunctional microphone allows control of the major functions of the radio right from the microphone. Microphone includes a 16 key DTMF pad.
- Band scan, program scan, memory scan, call scan.
- High power output. 50 W (TM-251A), 25 W (TM-331A) and 35 W (TM-451A).
- Built-in digital recording system.
- Fuzzy logic control for tuning.
- 6-pin mini DIN connector (1200/9600 bps packet) (Not with TM-331A).
- Dual menu system, DTSS with page and S-meter squelch.
- Auto power off and time out function.

2-Meter Mobile

HRO
Discount Price
$329.95

TM-241A

$459.95

Suggested List Price

This is a compact 2-meter, single band mobile FM transceiver. It also covers the aircraft frequencies on receive.

Major features include:

- 20 multifunction memory channels. Encode built-in. Decode with optional KQT-8.
- Optional DTSS unit allows selective calling and paging (DTU-2).
- 50 watts output.
- Automatic offsets.

All Mode Mobiles

TM-255A	TM-455A
2 meters	70 cm
$1109.95	$1279.95

Suggested List Prices

Call for LOW HRO DISCOUNT PRICES

This innovative family of radios, the TM-255A (144 MHz) and TM-455A (430-440 MHz), features a detachable front panel for easy mounting in any vehicle.

Major features include:

- 40 watts (TM-255A) and 35 watts (TM-455A) output with high / low switch.
- Operates in FM, SSB, and CW.
- 6-pin mini connector for 1200 / 9600 bps packet.
- Twin tuning with dual menu system.
- IF Shift (SSB and CW) and pulse noise blanker.
- 101 memories and multiple scanning functions.
- DDS (Direct Digital Synthesis) with fuzzy logic control.
- Tone alert with elapsed timer.
- Built-in CTCSS encoder. Optional TSU-8 tone decoder.
- Built-in TX temperature compensated crystal oscillator.

Attention Internet Users

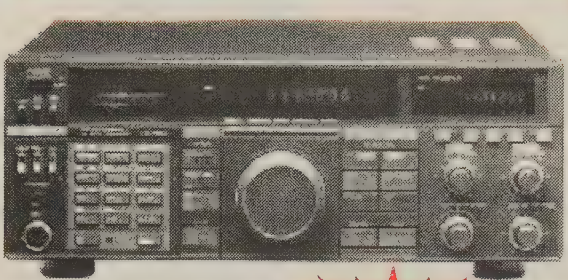
Look for Ham Radio Outlet
on the World-Wide Web.
Ham Radio Outlet's Home Page Info:
HTTP://WWW.HAMRADIO.COM

Also E-Mail:
West Coast, Ken, K1ZKM:
KDM@HAMRADIO.COM
East Coast, Chuck, KM4NZ:
CLW@HAMRADIOCOM

KENWOOD

VHF / UHF BASE

VHF / UHF All Mode



TS-790A

$2149.95
Suggested List Price

HRO Discount Price $1769.95

The TS-790A was designed to be the ultimate in VHF / UHF all-mode operation. Special features make it easy to use as an Oscar station.

Major features include:

- Operates all modes SSB, CW, FM.
- 2m and 440 MHz are standard with dual displays.
- Selectable AGC (fast / slow).
- Dual VFO with tracking.
- Receives 140-168 MHz. Modifiable for MARS / CAP transmitting.
- IF shift, RIT, noise blanker, and dual watch.
- Channelized tuning for normal FM repeater operation.
- 59 memories with alert and call channels.
- Standard and non-standard channel splits can be stored in memories.
- Optional 1.2 GHz with UT-10.
- Optional VS-2 voice synthesizer and optional TSU-5 decode unit.
- External 13.8 VDC power supply is required such as the Kenwood PS-31.

24 Hour FAX Order Numbers

Anaheim	**714-533-9485**
Atlanta	**770-263-9548**
Denver	**303-745-7394**
New Castle	**302-322-8808**
Oakland	**510-534-0729**
Phoenix	**602-242-3481**
Portland	**503-684-0469**
Salem	**603-898-1041**
San Diego	**619-560-1705**
Sunnyvale	**408-736-9499**
Burbank	**818-842-4973**
Woodbridge	**703-494-3679**

Kenwood VHF / UHF Specifications

Model	Power Supply	Current Drain		Output Power	Sensitivity	RIT/XIT Range	HRO Discount Price
	DC	Transmit	Receive				
TM-241A	13.8 V	11 A	0.6 A	50 W	<.16 µV		$329.95
TM-251A	13.8 V	11 A	0.6 A	50 W	<.16 µV		$399.95
TM-331A	13.8 V	6.5 A	0.6 A	25 W	<.16 µV		$489.95
TM-451A	13.8 V	10 A	0.6 A	35 W	<.16 µV		$499.95
TM-642A**	13.8 V		1.2 A	50V/25††	<.16 µV		$799.95
TM-733A	13.8 V	11.5 A	1.2 A	50V/35U	<.16 µV		$619.95
TM-742A	13.8 V	11.5 A	1.2 A	50V/35U	<.16 µV		$699.95
UT-28S**		11.5 A	1.2 A	50 W	<.16 µV		$309.95
UT-50S**		11.5 A	1.2 A	50 W	<.16 µV		$339.95
UT-220S**		7 A	1.2 A	25 W	<.16 µV		$339.95
UT-1200**		6.5 A	1.2 A	10 W	<.16 µV		$379.95
TM-255A	13.8 V	13 A	.9 A	40 W	<.13 µV	2.2 kHz	$899.95
TM-455A	13.8 V	15 A	.9 A	35 W	<.11 µV	2.2 kHz	$1,069.95
TS-790A	13.8 V	15 A	2.5 A	*	<.22 µV †	±9.9 kHz #	$1,769.95
TM-942A	13.8 V	11.5 A	1.2 A	@	<.16 µV		$1,069.95

† SSB/CW < .16 †† 220 MHz # SSB/CW ± 1.9

* VHF FM/CW 45 W; UHF FM/CW 40 W; 1200 MHz FM/CW/SSB 10W; VHF SSB 35 W; UHF SSB 30

**These modules used by TM-641, TM-942, TM-741A also.

@ VHF 50W; UHF 35W; 1200 MHz 1

Kenwood Power Cables

Part Number	Radio	HRO Discount Price
PG-2X	TS-140, 690, 790, 450, 850, 130, 440	$34.95
PG-2N	TM-2530/50/70, 721, 621A, 221/321/421, 241, 231/431/531, 251/451/551, 255/455,441, 201B, 401B, 541, 631, 642A,731, 741, 941, 732A, 733A, 642A,742A, 942A, TR-751A	$15.95
PG-2W	TH-26, 46, 28, 48, 79	$14.95
PG-2Y	TS-50S/60S	$38.95
KLF-3	TH-26, 27, 46, 47	$23.95
PG-3H	TH-28, 48, 78	$34.95

Handheld Battery Packs / Chargers

Battery	Voltage	Rating MAH	Desk Charger	Radio Series	HRO Discount Price
KNB-5A	7.2	800	KSC-7/8	TH-25/26/45/46/55/75/77	$76.95
KNB-6A	7.2	1100	KSC-7/8	TH-25/26/45/46/55/75/77	$97.50
KNB-7A	12	800	KSC-7/8	TH-25/26/45/46/55/75/77	$76.95
PB-5	7.2	200	KSC-7/8	TH-25/26/45/46/55/75/77	$59.95
PB-9	7.2	600	KSC-7/8	TH-25/26/45/46/55/75/77	$70.95
PB-12	12	500	BC-7	TH-205/215/225/315/415	$66.95
PB-13	7.2	700	BC-15A	TH-27/47/28/48/78	$63.95
PB-14	12	300	BC-15A	TH-27/47/28/48/78	$89.95
PB-17	12	700	BC-15A	TH-27/47/28/48/78	$99.95
PB-18	7.2	1100	BC-15A	TH-27/47/28/48/78	$86.95
PB-21	7.2	180	N/A	TH-21/31/41	$29.95
PB-21H	7.2	500	N/A	TH-21/31/41	$49.95
PB-24	9.6	500	N/A	TR-2400	$54.95
PB-26	8.4	450	ST-2	TR-2500/2600	$64.95
PB-32	6	600	KSC-14	TH-22AT/42AT/79A	$64.95
PB-33	6	1200	KSC-14	TH-22AT/42AT/79A	$89.95
PB-34	9.6	600	KSC-14	TH-22AT/42AT/79A	$89.95

Kenwood VHF Accessories

Option	Model	211A 411A	221A 321A 421A 521A	231A 331A 431A 531A	241A 441A 541A	251A 451A 551A	255A 455A	711A 811A	751A 851A	2530A 2550A 2570A	4100A	621A 721A	631A 731A	732A	733A	642A 742A 942A	641A 741A	941A	HRO Discount Price
Microphone																			
Hand	MC-43S	*	*	*				*	*	*	*	*	*						$58.95
Hand	MC-44DM		*	std	std								std						$74.95
Hand	MC-45													*		*	*	*	$41.95
Hand	MC-45DM					std	std							std	std	std	std	std	$74.95
Hand	MC-48B	*	*	*		*	*	*	*	*	*	*	*	*	*	*			$78.95
Desk	MC-60A	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		$151.95
Desk	MC-80	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		$107.95
Desk	MC-85	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		$164.95
Modular Mic Switch	MJ-89															*			$67.95
External Speaker	SP-41	*	*	*	*				*	*	*	*	*	*			*	*	$48.95
	SP-50B	*	*	*	*				*	*	*	*	*	*			*	*	$52.95
Voice Synthesizer	VS-1							*	*	*									$65.95
	VS-2										*								$67.95
Noise Filter	PG-3B	*	*	*	*				*	*	*	*	*	*		*	*	*	$29.95
	TU-7								*	*	*								$49.95
	TSU-5		*																$59.95
Tone Decoder	KQT-8			*	*							*	*						$46.95
	TSU-7													*		*	*	*	$55.95
	TSU-8						*							*		*	*	*	$55.95
DTMF Unit	DTU-2				*	*													$29.95
Memory Unit	ME-1					*													$38.95
Mobile Mount	MB-11										*	*	*			*	*	*	$33.95
	MB-14															*			$47.95
	MB-201		*	*	*									*					$24.95
	MB-430							*											$43.95
Power Cable	PG-2N	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	$15.95
Digital Recording Unit	DRU-1			*	*														$109.95
Data Cable	PG-5A																		$14.95
Extension Cables	DFK-3*															*			$24.95
13'	DFK-4*															*			$54.95
22'	DFK-7*															*			$84.95

* See Page 22 for additional information

Kenwood's Repair Facilities

WEST

Kenwood Communications Corporation
2201 East Dominguez Street
P.O. Box 22745
Long Beach, CA 90801

Customer Relations:
(310) 639-5300
FAX: (310) 631-3913
Hours M-F: 8:30 am - 4:00 pm PT

Parts: (800) 262-1312
(310) 515-0207
Hours M-F: 8:30 am - 4:30 pm PT

Bulletin Board (Free):
(310) 761-8284

On line 24 Hours a day,
7 days a week.

Modem Settings:
No parity, 8 data bits, 1 stop bit
9600 baud or less

EAST

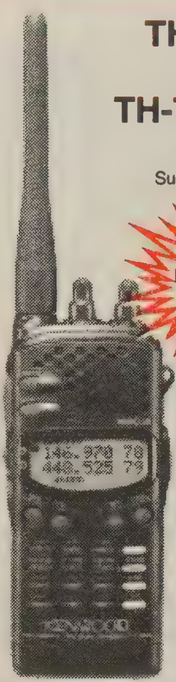
Kenwood Service Center East
829 South Lynnhaven Pkwy.
Suite 130
Virginia Beach, VA 23452

Service Questions Only
(804) 340-1702
FAX: (804) 340-6809
Hours M-F: 10:00 am - 6:00 pm ET

Parts: (800) 637-0388
(516) 483-5742
Hours M-F: 9:00 am - 6:30 pm ET

KENWOOD

Dual Band



TH-79A (D)

$599.95

TH-79A (D)-HP

$649.95

Suggested List Price

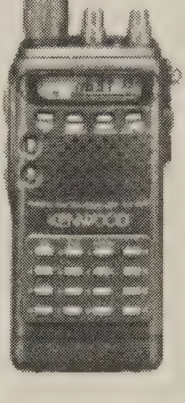
HRO Discount Prices
$459.95
HP–$489.95

Kenwood's new TH-79A (D) Deluxe dual-band handheld offers the optimum combination of operating ease and powerful performance in a compact, lightweight design.

Major features include:

- Skip-Scan feature now included.
- Dot-matrix LCD and menu system. Displays frequency data and a menu system with full alphanumeric function display and settings
- 2.7 watts on 2 meters. 2.0 watts on 70 cm with the standard PB-32 NiCd battery.
- 5.0 watts on both bands with optional PB-34 NiCd battery or with 13.8 VDC operation.
- 82 non-volatile memory channels, with ID. An alphanumeric ID (max. 7 characters) can be stored with each channel. No battery backup is needed.
- Features full-duplex cross-band operation and has the ability to simultaneously receive two frequencies even when on the same band.
- Equipped with a high efficiency FET power module.
- Guide function on the LCD panel display eliminates the need to carry a manual.
- DTMF key pad with DTMF memory function.
- Dual Tone Squelch with page.

HRO Discount Prices
22AT–$269.95
42AT–$339.95



TH-22AT

2 Meters

$349.95

TH-42AT

70 cm

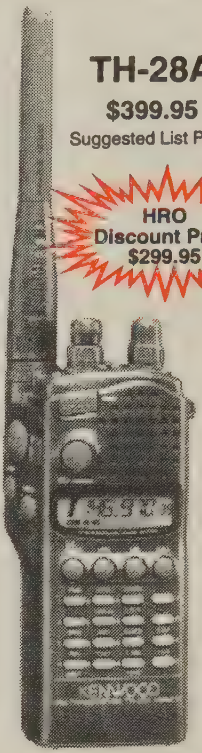
$389.95

Suggested List Prices

These HT's are the latest in Kenwood's line of ultra compact hand held transceivers. These are available for either 2 meters or 440 MHz.

Major features include:

- Extended receiver frequency coverage 136 - 174 MHz on the TH-22AT.
- Five watts output with optional PB-34 battery or with 13.8 VDC power.
- Selectable 3 position output power control.
- Operates from 5.0 to 16 VDC allowing easy connection to the car battery or power supply.
- 40 memories with odd offset capability in one memory.
- Selectable memory CH number display mode.
- Multiple scanning functions.
- Tone alert system with received time indication.
- Wireless cloning function.
- Built-in CTCSS tone encoder.
- Built-in Time Out Timer and busy CH lock out.
- DTSS Dual Tone Squelch System with pager function built-in.
- DTMF memory function for auto-dial operation 5, 15 digit channels.

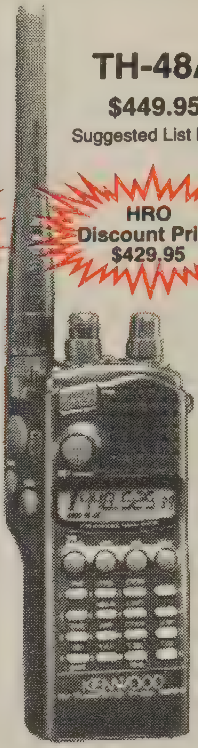


TH-28A

$399.95

Suggested List Price

HRO Discount Price
$299.95



TH-48A

$449.95

Suggested List Price

HRO Discount Price
$429.95

The TH-28A covers two meters and includes a built-in UHF receiver: 118-173 MHz RX, 144-147.995 TX, 438-449.995 RX. It has 2.5 watts output with the standard PB-13 battery.

The TH-48A covers 70 cm and includes a built-in two meter receiver: 438-449.995 MHz TX/RX, 136-173.995 MHz RX. It has 2 watts output using the standard PB-13 battery pack.

Features common to both radios are:

- Both handhelds are equipped with a switchable dual-band (144 MHz / 440 MHz) receive capability for semi-duplex cross-band operation.
- Alpha-numeric six character display and memory paging.
- Includes a high capacity NiCd battery pack, the PB-13, for 2.5 watts output on the TH-28A, or 2.0 watts output on the TH-48A.
- Multifunction band scanning or the 41 memory channels (expandable to 240 memories with optional ME-1).
- 5 watts power output available with the optional PB-14 or PB-17, or with 13.8 VDC operation.
- 15 digit auto-dialer, including ★, #, A, B, C, D. Auto-dialer memory for up to 10 phone numbers.
- Built-in digital clock and encode / decode unit.
- 10 minute time-out timer to extend battery life.
- Direct keyboard frequency entry.
- CAP / MARS modifiable with proper license.
- All the TH-27 / TH-78 accessories are compatible.

Kenwood Handheld Options

Option	Model	21BT 31BT 41BT	22AT 42AT	26AT 46AT	27AT 47AT	28A 48A 78A	25AT 45AT 75AT	77A	79A(D)	215AT 315AT 415AT	225AT	2600A 3600A	HRO Discount Price
Headset	HMC-2		*	*	*		*	*	*	*	*		$69.95
	EMC-1								*				$41.95
Speaker Mic	SMC-32	*	*		*		*	*	*	*	*	*	$48.95
	SMC-33		*	*	*				*				$62.95
	SMC-34		*		*				*				$62.95
Prog. Tone Decoder	KQT-8						*						$46.95
	TSU-7			*		std							$55.95
	TSU-4									*	*		$46.95
	TSU-8		*										$55.95
DC/DC Converter	DC-1			*			*						$26.95
	KVC-1							*					$33.95
	PG-2W		*		*	*							$14.95
	PG-2V									*	*		$14.95
Filtered Cigarette Lighter Cord	KLF-3				*			*					$23.95
	PG-3E						*			*	*		$34.95
	PG-3H					*			*				$29.95
Base Quick Charge	BC-15A				*	*							$99.95
	KSC-14		*						*				$84.95
Battery Case	BT-8				*	*							$26.95
	BT-9		*						*				$29.95
Softcase	SC-31				*								$21.95
	SC-33					*							$22.95
	SC-34					*							$22.95
	SC-37		*										$22.95
	SC-39		*										$22.95
	SC-41								*				$22.95
	SC-43								*				$22.95
Wall Charger	BC-2	*											$22.95
	BC-14				*	*							$24.95
	BC-17		*										CALL

Kenwood Handheld Specifications

Model	Freq Range	Power Supply	Power Out†	Current Transmit	Current Receive	Sensitivity	Height in(cm)	Width in(cm)	Depth in(cm)	Weight oz(g)	HRO Discount Price
TH-22AT	144-148 MHz	6 VDC	3 W	1.3 A	45 mA	<.16 µV	4.6 (11.7	2.2 (5.6)	.96 (2.5)	10.2 (290	$269.95
TH-42AT	438-450 MHz	6 VDC	2.5 W	1.6 A	45 mA	<.18 µV	4.6 (11.7	2.2 (5.6)	.96 (2.5)	9 (242)	$339.95
TH-28A	144-148 MHz	7.2 VDC	2.5 W	1.5 A	60 mA	<.18 µV	4.6 (11.5	1.9 (4.9)	1.5 (3.8)	12 (330)	$299.95
TH-48A	438-450 MHz	7.2 VDC	2.0 W	1.5 A	70 mA	<.18 µV	4.6 (11.5	1.9 (4.9)	1.5 (3.8)	12 (330)	$429.95
TH-79A (D)	2m & 440MHz	6 VDC	2.7 W#	1.3 A	80 mA	<.16 µV	5.1 (12.9	2.1 (5.6)	1 (2.5)	15 (400)	$459.95

† Higher power output with optional batteries # 2 watts for 440 MHz

STANDARD®

The largest manufacturer of VHF/UHF Amateur Radio equipment in the world.

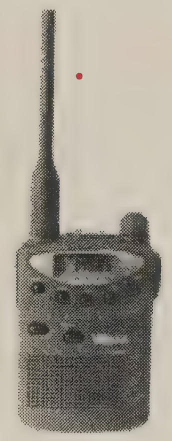
Reeeally Small HTs

C508A
2m / 70 cm Dualband

$289.95

HRO Discount Price

- 2m/440MHz TX.
- Receives 100-180 MHz, 340-400 MHz, and 400-480 MHz.
- Program for AM aircraft receive.
- 60 memories + 2 VFO, 2 call.
- 22-selection menu-driven screen.
- Back-lit display.
- CTCSS 39-tone encode/decode.
- Uses 2AA batteries. Power output 0.28W.
- Approx. 2.28" W, 3.35"L, .98"D.
- Weight 5.65 oz.



C108A
2 Meter Handheld

$269.95

Suggested List

- 144-147.995 MHz transmit.
- 100-174.995 MHz receive.
- Power output with standard battery 0.2W.
- Small and compact.
- CTCSS encode built-in.

HRO Discount Price $229.95

Small HTs

C158A
2 Meters in Your Pocket

$339.95

Suggested List Price

- 130-170 MHz receive.
- 144-148 MHz transmit.
- Power output with standard battery 2.0 W.
- 5 Watts at 12 Volts.
- CTCSS encode/decode standard.

HRO Discount Price $294.95

C168A C468A
2 Meter 440 MHz

$469.95 $479.95

Suggested List Prices

Call for HRO DISCOUNTS

C168A

- 144-147.995 MHz transmit.
- 115-175 MHz receive.
- Receives (AM) Aircraft Band.
- Power output with standard battery 2.5 W.

C468A

- 438-449.995 MHz transmit.
- 400-470 MHz receive.
  - Power output with standard battery 2.5 W.
  - 5 watts at 12 Volts.
  - External DC jack for 12V input.

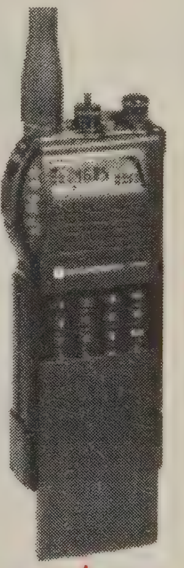
Ultra-Thin

C288A
220 MHz Thin Handheld

$499.95

Suggested List Price

- 2.5 W with standard battery, 5 W at 9.6VDC.
- Ten 15-digit autodial memories.
- Advanced H.E.C. technology.
- Slide cover protects keyboard.



HRO Discount Price $359.95

Dual Band

C178A
2 Meters *and* 440 MHz

$459.95

Suggested List Price

- 144-147.995 MHz and 438-449.995 MHz transmit.
- 110-174.995 & 320-474,995 MHz receive.
- Power output with standard battery: 2 W (2 m).
- Programmable AM receive for aircraft.
- Ten DTMF 15-digit memories.
- DTMF Paging/Coded Squelch.
  - 2m: 5 watts at 12VDC.
  - 50 mW output on 70cm.

HRO Discount Price $399.95

Standard Handheld Specifications

Model	Frequency	Power Supply	Power Out Transmit@	Current Transmit	Drain Receive	Sensitivity	Height in	Width in	Depth in	Weight oz
C108A	100-174.995 MHz †	3.0 VDC	.2W	.22 A		.112 µV 12 dB	3.15	2.28	0.98	4.9
C158A	130-170†	7.2 VDC	2.0 W	700 mAh	40 mA	.158 µV 12 dB	5.38	2.2	1.2	12.5
C168A	115-175 MHz †	7.2 VDC	2.5 W	700 mAh	38 ma	.158 µV 12 dB	4.9	1.8	1.2	10
C178A	110-174, 320-474.995†*	7.2 VDC	2.0 W	700 mAh	38 ma	.158 µV 12 dB	4.88	2.2	1.2	12.5
C288A	200-249 MHz †	7.2 VDC	2.5 W	700 mAh	38 ma	.158 µV 12 dB	5.8	2.3	1	10
C468A	350-474.995 MHz †	7.2 VDC	2.5	700 mAh	38 ma	.158 µV 12 dB	4.9	1.8	1.2	10
C568A	110-199.995,310-485,800-1299.99 MHz †	7.2 VDC	2.0/2.0/50 mw	700 mAh		.158 µV 12 dB	5.3	1.85	1.34	13.8

† Transmit amateur bands only. Frequencies are for receive only *Am receive for aircraft @Higher power with optional batteries

VHF / UHF HANDHELDS

Twin-Band FM Handhelds

"Everyone loved it" *...QST – June 1991*

*QST even used the **C228A** as a reference to compare to other manufacturer's dual-banders!*

HRO Discount Price $449.95

C528A

Deluxe H/T with
2 Meters / 440 MHz

$495.95

Suggested List Price

- 144-147.995 & 438-449.995 MHz.
- 130-170 & 300-470 MHz receive.
- Power output with standard battery 2.5 W / 2 meters, 2.5 W / 440 MHz.
- Advanced design flex antenna.

HRO Discount Price $579.95

C228A

World's only H/T with
2 Meters / 220 MHz

$695.95

Suggested List Price

- 144-147.995 & 220-224.995 MHz.
- 130-174 and 200-245 MHz receive.
- Power output with standard battery 2.5 W / 2 meters, 2.5 W / 220 MHz.
- Autodial up to 15 digits.

HRO Discount Price $669.95

C628A

Deluxe H/T with
440 MHz / 1.2 GHz

$727.95

Suggested List Price

- 438-449.995 & 1240-1300 MHz.
- 300-470 & 1240-1300 MHz receive.
- Power output with standard battery 2.5 W / 440 MHz, 1 W / 1.2 GHz.

HRO Discount Price $529.95

C558A

Super-Compact
2 Meters / 440 MHz

$689.95

Suggested List Price

- 144-147.995 & 438-449.995 MHz.
- 115-170 & 340-470 MHz receive.
- Receives (AM) aircraft.
- 2.5W/2m, 2.5W/440 MHz with standard battery
- Ten 15-digit autodial memories

Tri-Bander

HRO Discount Price $599.95

C568A

Compact Tribander
2 m/70 cm/1.2 GHz

$689.95

Suggested List Price

- 6 twin RX and TX configurations.
- Menu driven transceiver.
- AM programmable & auto detect for aircraft.
- Power output on 2M: 5 W, 2.5 W, or 350 mW.
- 40 memories.
- MARS and CAP mods available.

	C228A / C528A / C628A	C558A
•Memory channels:	40 (20 +20 "limited") +2 call +2 vfo (non-removable memory unit).	40 (opt. 40- or 200-mem. units plug in).
•Sensitivity (ham bands):	0.158 µV for 12 dB SINAD.	0.158 µV for 12dB SINAD.
•NiCd battery pack:	700 mAh, 7.2 VDC standard! Other sizes optional.	700 mAh, 7.2VDC std. (fits 228/528/628).
•Power output (12VDC):	5 W high, 2.5 W mid, 350 mW low (1.2 GHz: 1 W high).	5 W high, 2.5 W mid, 350 mW low.
•External input voltage range:	6.0 to 16 volts DC.	6.0 to 16 V. DC w/included CMA181.
•Battery Save mode:	Also automatic power-off mode.	Also automatic power-off mode Battery save adjustable.
•Subaudible tone deck:	CTCSS encode and decode standard.	CTCSS encode / decode standard.
•Paging function:	Also DTMF coded squelch.	Also DTMF squelch, even w/CTCSS.
•Cross-band operation (full-duplex):	Push-button control of cross-band repeat mode.	P.B. control of Cross-band repeat.
•Twin-Band (not just dual-band):	Receives on 1 band while transmitting on the other.	RX 1 band while TX on other band.
•Scan function:	5 scan modes per band, each band is independent.	5 scan modes; 3 types on each band.
•Low current drain (Twin-band):	70 mA squelched receive, 32 mA battery save.	70 mA squelched RX, 25 mA batt.save.
•Even less current drain in single band mode:	36-45 mA squelched, 17-18 mA batt save.	36-45 mA sq., 17-18 mA batt.save.
•Cloning (duplicate program) over the air:	Simply transmit to another C228 / 528 / 628A.	Simply transmit to another C558A.
•Size (approximate, w/battery, w/o protrusions):	6.2" H x 2.2" W x 1.2" D.	5.1"H x 2.2"W x 1.2"D.
•Weight (approximate):	17 oz with battery and antenna.	12.5 oz with battery and antenna.
•MARS and CAP (copy of license required):	Info available from Ham Radio Outlet.	Info available from HRO.

SR STANDARD®

Presenting the most advanced, highest quality radios available today!

Standard Handheld Accessories

Model	Description	C108A	C168A C468A	C158A	C188A C288A C488A	C228A C528A C628A	C178A	C508A	C558A	C568A	HRO Discount Price
	Microphones/Speakers										
CHP111	Headset/Boom Mic (PTT)	*	*	*	*	*	*	*	*	*	$45.95
CHP150	Headset/Boom Mic (VOX AND PTT)	*	*	*	*	*	*	*	*	*	$81.00
CMP111	Speaker Microphone	*	*	*	*	*	*	*	*	*	$54.95
CMP113	Clip-on Submini Microphone with Earphone	*	*	*	*	*	*	*	*	*	$44.00
CMP115	Mini Speaker Microphone	*	*	*	*	*	*	*	*	*	$50.00
CMP123	Ear microphone							*		*	$63.95
	Memory										
CMU160	Extra 40-Memory Plug-In Unit (Swap in-and-out)		*						*		$31.00
CMU161	200-Memory Plug-In Unit (Swap in-and-out)		*				*		*	*	$44.00
CMU181	Extra 40-Memory Plug-In Unit (Swap in-and-out)				*						$36.00
CMU182	200-Memory Plug-In Unit (Swap in-and-out)				*						$44.00
	Batteries, etc										
CNB150	Opt. Small NiCd, 7.2VDC, 400mAh			*		*			*		TBA
CNB151	Standard NiCd Batt, 7.2VDC, 700mAh			*		*			*		$78.95
CNB151GY	Standard NiCd Batt, 7.2VDC, 700mAh								*		$99.95
CNB152	Opt. High-Power NiCd Batt. 12VDC, 600mAh			*		*			*		$99.95
CNB153	Opt. Long-Life NiCd Batt, 7.2VDC, 1000mAh			*		*			*		$99.95
CNB160	Opt. Small NiCd, 6VDC, 300mAh		*								$72.95
CNB161	Standard NiCd Batt, 7.2VDC, 700mAh		*								$75.95
CNB162	Opt. High-Power NiCd Batt. 12VDC, 600mAh		*								$119.95
CNB163	Opt. Long-Life NiCd Batt, 7.2VDC, 1000mAh		*								$99.95
CNB171	Standard NiCd Batt, 7.2VDC, 700mAh						*			*	$79.95
CNC172	Opt 12V 600 mAh NiCd Batt						*			*	$120.95
CNB173	NiCd Battery 7.2V 1100 mAh						*			*	$99.95
CNB181	Opt. Small NiCd, 4.8VDC, 700mAh				*						$57.95
CNB182	Opt. High-Power NiCd Batt. 9.6VDC, 600mAh				*						$99.95
CNB183	Opt. Long-Life NiCd Batt, 6.0VDC, 1100mAh				*						$95.95
CNB184	Standard NiCd Batt, 6.0VDC, 700mAh				*						$67.95
CNB401	NiCd Battery Pack	*						*			$19.95
CBT151	Alkaline Case, for 6 AA batteries			*		*					$20.95
CBT151GY	Alkaline Case, for 6 AA batteries								*		$20.95
CBT160	Alkaline Case, for 5 AA batteries		*								$20.95
CBT171	Battery Case (6 cells)						*			*	$20.95
CBT175	Battery Case (2 cells)						*				$17.95
CBT181	Alkaline Case, for 4 AA batteries				*						$17.95
CBT182	Alkaline Case, for 5 AA batteries				*						$27.95
CAX160	Battery Separation Cable (Remote Battery Adapter)		*								$50.95
	Chargers, etc										
CAW150	Mobile 12 V Power Cable w/Lighter Plug		*	*	*	*	*		*	*	$16.95
CAW151	12V Power Cable		*	*	*	*	*		*	*	$13.95
CAW152	Mobile Cable, Lighter plug & Noise Filter		*	*	*	*	*		*	*	$28.95
CCA160	Chg.Adapt.,CBT160(NiCd's)to Wall Chgr. or CMC150		*								$26.95
CMA181	Mobile 12 V Power Cable w/Lighter Plug (w/Adapter)				*						$38.95
CMC150	Mobile Charger (not for 12VDC NiCd's or 9.6VDC NiCd's)		*	*	*	*	*		*	*	$27.95
CSA181A	Peak-Detecting Auto-Rapid Desktop Charger		*	*	*	*	*		*	*	$109.95
CSA401A	NiCd Battery Charger	*						*			$43.95
	Cases, etc										
CAX02	Bottom Cover (pair)			*		*					$11.95
CAX03	Bottom Cover		*				*			*	$11.95
CBH160	Spring-Loaded Clip	*	*								$10.95
CLC151	Std case for CBT151 and CNB151			*							$24.95
CLC152	Large Case for CNB152 and CNB153			*							$26.95
CLC160	Small Soft Case (use with CNB160)		*								$26.95
CLC161	Med. Case (w/CNB161 or CBT160)		*								$26.95
CLC162	Large Soft Case (use with CNB162/163)		*								$27.95
CLC171	Std case for CBT171 and CNB171						*				$29.95
CLC172	Large case for CNB172 and CNB173						*				$29.95
CLC181	Small Soft Case (use with 181 or CBT-181)				*						$18.95
CLC182	Med. Case (w/CNB182/83/84 or CBT182)				*						$20.95
CLC401	Standard Soft Case	*									$26.95
CLC402	Deluxe Soft Case	*									$26.95
CLC501	Standard Soft Case							*			TBA
CLC520	Med. Case (w/CNB151 or CBT151)					*					$27.95
CLC521	Large Soft Case (use with CNB152/153)					*					$27.95
CLC550	Med. Case (w/CNB151 or CBT151)								*		$27.95
CLC551	Large Soft Case (use with CNB152/153)								*		$30.95
CLC555GN	Pouch (Green)		*	*			*		*	*	$34.95
CLC555OR	Pouch (Orange)		*	*			*		*	*	$34.95
CLC560	Std carrying case (use with CBT171 and CNB171)									*	$27.95
CLC561	Large carrying case (use with CNB172 and CNB173)									*	$27.95
CLC561	Hard carrying case (use with CBT171 and CNB171)									*	$27.95
CMB111	Mobile Bracket		*	*	*	*	*		*		$21.95
CMB112	Mobile Bracket		*	*	*	*	*		*	*	$21.95

HRO
Discount Price
$729.95

C5718DA

$849.95
Suggested List Price

C1208A

$529.95
Suggested List Price

HRO
Discount Price
$479.95

What Twin-Band Mobile's Speaker-Mike Displays Both Bands?

What Twin-Band Mobile Delivers up to 50 Watts?

The Standard C5718DA, of course!

This is the smallest, lowest price twin-band mobile radio that delivers all these features.

Operate the C5718DA from its optional snap-on front panel with twin frequency display (CRC5700) or mount it under a seat or even in the trunk using the optional cable (CAW571 or CAW572).

The C5718DA is designed with packet in mind with out-of-the-box high-speed, 9600 baud and interface for both VHF and UHF bands. Just connect your TNC to the C5718DA and you are on the high speed packet network. Also operates at 1200 and 2400 baud equally well.

Features include:

- Transmit 144-147.995 and 420-449.995 MHz.
- Unsurpassed intermod rejection.
- Built-in antenna duplexer.
- Dual frequency receive: 2 VHF, 2 UHF or VHF / UHF.
- Extended receive frequency range: 110-199.995 MHz including AM aircraft and 250-499.995 MHz.
- Eight scanning options.
- 40 memories (20 per band) store frequency, offsets and tones.
- 200 memory channels with optional CMU182.
- CTCSS encode / decode standard.
- Full duplex cross-band operation with CTCSS tones.
- Paging and coded squelch.
- DTMF autopatch dialing.

The C5718DA is Packet Ready.

A full featured 2-meter rig that fits anywhere, yet puts out a full 50 watts as well — that's Standard's C1208DA. With all controls and the large liquid crystal display in the speaker / microphone, this rig can mount anywhere. It can be mounted under the seat, behind the dash, or in the trunk (with optional extension cable). All this plus it's packet ready (up to 9600 baud) and includes wide range (100-200 and 250-520 MHz) receive.

Other features include:

- Frequency range: transmit 144-148; receive 100-199.995 plus 250-519.995 MHz, FM or AM and AM aircraft.
- Power output is 50, 10, or 3 watts selectable.
- 100 memories stores frequency, offsets and CTCSS tones.
- CTCSS encode and decode built-in.
- DTMF auto dialing, 10 memories of 15 digits each.
- 6 modes of scanning including priority and CTCSS.
- Built-in quiet cooling fan.
- Mobile mounting bracket and 9-foot power cord included.

Standard Mobile Accessories

Model	Radio	Description	HRO Discount Price
CAW562	C5608DA/C1208DA	13 ft. extinsion cable remotes radio to trunk (mike w/LCD display allows full control)	$45.95
CAW560	C5608DA/C1208DA	Dual microphone cable for second microphone (allows an additional operating position)	$44.95
CAW561	C5608DA/C1208DA	6 ft. mic extension cable	$33.95
CSK12	C5718DA/C5608DA/ C1208DA	External extension speaker (necessary if trunk mounting the radio)	$47.95
CRC5700	C5718DA	Removable front panel with twin frequency display	$199.95
CAW570	C5718DA	Split cable for microphone	$62.95
CAW571	C5718DA	2 meter microphone extension cable	$43.95
CAW572	C5718DA/C1208DA	4 meter microphone extension cable	$48.95
CAW573	C5718DA	2 meter extension cable for the front panel (CRC5700)	$27.95
CAW574	C5718DA	4 meter extension cable for the front panel (CRC5700)	$36.95
CAW575	C1208DA	Extra 12 volt power cable 15 ft	$26.95
CAW576	C1208DA	Extra 12 volt power cable 9 ft	$24.95
CMU182	C5718DA	200 memory option module	$44.95

YAESU

HRO
Discount Price
$2969.95

FT-1000MP

$3599.95

Suggested List

NEW!

Although this HF transceiver works in all modes (SSB, CW, FSK, AM, FM, Packet), it is optimized for digital communications modes. The enhanced digital signal processing (EDSP) system provides four random-noise reduction settings, selectable bandpass filtering with adjustable low and high cut responses, and transmitted audio enhancement. Also, an automatic seeking EDSP notch filter identifies and eliminates interfering heterodynes and carriers should they appear in the passband.

Two VFO knobs allow individual adjustments to the Main and Sub VFO's to provide in-band dual receive, even on different modes and bandwidths. The "Shuttle-jog™" tuning enhancement allows quick QSY up or down the band with a slight turn of the wrist.

Direct Digital Synthesizers (DDS) provide extremely fine funing steps, thirteen of them, selectable down to 0.625 Hz per step. A full-featured contest memory keyer, provides CQ message generation along with contest numbers.

A lightweight switch-mode AC power supply is built in. And a high-performance high-speed automatic antenna tuner, with 39 frequency information memories, is built into every FT-1000MP.

Features include:

- General coverage receiver 100 kHz to 30 MHz.
- Power output 100 watts.
- Dual in-band receive with separate S meters.
- Collins mechanical filters: 455 kHz / 2.75 kHz SSB built in. A 455 kHz / 500 Hz CW is optional.
- Wide receiver dynamic range with separate, optimized FET RF; preamps for high and low bands.
- Cat system capability with built-in RS-232C level converter.
- Transverter jack for VHF/UHF operation (display indicates actual VHF or UHF frequency).
- Selectable antenna jacks. Separate receive-only antenna jack also included.
- Custom configuration via new menu system.
- Quick memory bank (QMB) system for instant recall of important memories.

HRO
Discount Price
$4199.95

FT-1000D

$5359.95

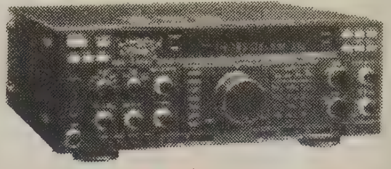
Suggested List

The FT-1000D was designed with the latest digital and RF technologies. It employs extensive surface-mount components, 6 microprocessors, and five Direct Digital Synthesizers all integrated into a reliable full-featured transceiver optimized for the serious amateur.

The FT-1000D includes these items as standard features: BPF-1 module for cross-band dual receive; TCXO-1 high stability oscillator; XF-C 2.4 kHz SSB filter; XF-D 2.0 kHz SSB Filter; and XF-E 500 Hz CW filter. Options are the XF-F 250 Hz CW filter; XF-455MC 600 Hz sub-receiver CW filter; and the DVS-2 Digital voice recording module.

Selected features include:

- General coverage receiver from 100 kHz to 30 MHz.
- All mode operation (SSB, CW, FSK, AM, FM, Packet). Optimized for digital communications modes.
- Built-in power supply for 110, 117, 220 & 234 VAC 50/60 Hz.
- Transmitter output is 200 watts. (50 watts AM).
- Receiver is quad-conversion with a 108 dB dynamic range.
- Special features for CW operation including CW spot, audio peak filter and variable IF bandwidth.
- Band pass filter BPF-1 module built-in on FT-1000D.
- Optional digital voice recording with the DVS-2 module.
- Simultaneous dual frequency reception. Each VFO has its own flywheel-weighted tuning knob.
- 99 memories storing frequency, mode, filter selection.
- CAT system allowing the radio to be computer controlled.



HRO
Discount Price
$2199.95

FT-990

$2759.95

Suggested List

Yaesu's FT-990 combines the basic technical features of its top-of-the-line rigs with recent advances such as a very quiet switching mode AC power supply and Yaesu's exclusive dual digital switched capacitance filters (SCF).

Major features include:

- Frequency coverage: Receive 100 kHz to 30 MHz. Transmit 160m to 10m amateur bands.
- Built-in high performance antenna tuner with 39 memories.
- RF frequency shifter speech processor.
- 90 memory channels.
- Full- and semi-break-in CW.
- Dual VFO's with band stacking.
- Multimode selection on packet/ RTTY.
- Variable threshold noise blanker.
- Front panel RX antenna selection.
- Optional digital voice recorder (DVS-2).

The FT-990DC is also available: a 13.8 VDC version of the FT-990 with no-power-supply or CW filter.

FT-1000

$4229.95

Suggested List Price – Call for Quotes

For the budget minded ham who wants a top-of-the-line radio, Yaesu offers the FT-1000. It has all the features of the FT-1000D except the BPF-1, TCXO-1, XF-C, XF-D, XF-E listed for the FT-1000D. Additional options available are the XF-F 250 Hz CW filter; XF-455MC 600 HZ CW filter and the DVS-2 Digital Voice Recording Module.

FT-900
$1519.95

FT-900AT
$1719.95

Suggested List Price

HRO Discount Prices
900–$1299.95
900AT–$1349.95

The FT-900 is a compact, affordable HF transceiver which features a detachable front panel that can be mounted separately from the main body. (A YSK-900 separation kit is required.) This allows you to configure the FT-900 for maximum safety, best display visibility and ease of operation in mobile installations.

Perfect as a high performance base station, the FT-900 quickly doubles as a full featured mobile or Field Day rig.

High Performance
The FT-900 provides up to 100 watts power output on all HF amateur bands in CW, SSB and FM modes, and up to 25 watts carrier in AM. General coverage reception is possible from 100 kHz to 30 MHz.

Detachable Sub-Panel
The lightweight, detachable sub-panel permits separating the transceiver and mounting the main unit in a remote location. This enables you to keep the most commonly used front-panel controls and display where you need them – in a comfortable and safe location. (YSK-900 separation kit required).

Multi-function Display
Operational settings are displayed on a high-contrast backlit LCD, which includes a three-mode bargraph meter with "peak-hold" segments that assist in tuning stations with fluctuating signal strength.

Improved CW Operation
The reverse-sideband feature switches the receiver carrier point (offset) to help sidestep QRM, and eliminates the need for retuning when switching between LSB and CW (convenient on 40 meters and below.) The adjustable BFO offset lets you match CW pitch to that used by most TNCs or multi-mode decoders. Properly tuned stations will be centered in the receiver IF passband for best copy. The internal electronic keyer has front-panel control of speed, weighting and mode (semi/full break-in).

High-Tech DDS Design
Twin direct-digital synthesizers (DDS) provide pure local signals and fast tx/rx changeover needed for QSK CW operation. A magnetic rotary encoder with selectable 2.5, 5, or 10 Hz tuning steps results in silent, silky-smooth tuning. Frequency accuracy and stability are assured by driving both DDSs from a single master oscillator. The optional TCXO-3 temperature-compensated crystal oscillator is also available for enhanced ±2-ppm stability for 0 to 50 degrees C.

The FT-900 receiver front end features a low-noise, high performance FET RF amplifier feeding an active double-balanced quad FET ring mixer. The RF amplifier can be by-passed for direct-feed to the mixer (Intercept Point Optimization). For very strong signals a 12 dB attenuator can be inserted for clear copy.

Interference rejection is facilitated by an IF shift and notch circuit. Install the optional XF-100S crystal filter for enhanced SSB and AM narrow-skirt selectivity.

Four microprocessors in the rig are programmed to provide two independent (A/B) VFOs for each band (20 total) holding their own frequencies and mode settings. 100 memories store this information for both VFOs giving a total of 220 independent sets of information. All 100 or selected memories can be scanned and tuned. 10 special memories let you limit the tuning/scanning range.

Other features include a noise blanker, all-mode squelch, AF speech processor with adjustable IF offset.

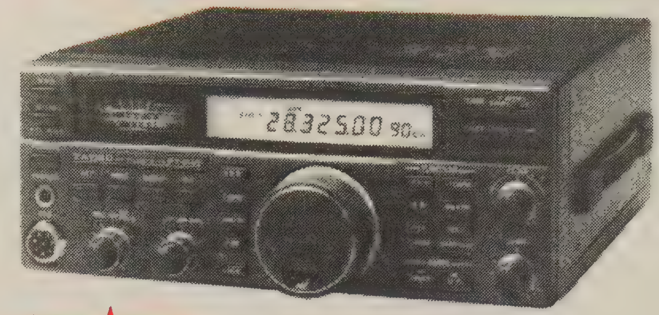
Internal Antenna Tuner
The internal ATU-2 antenna tuner has 31 memories which store the most-recent settings for quick recall. The external FC-800 can be remotely installed at the antenna feed point. The antenna tuner is controlled from the front panel.

Yaesu HF Specifications

		Power Supply		Current Drain		Power Output									
Model	Frequency Range	AC	DC	Xmit	Rec	AM	FM	SSB	CW	Mike Z	Receive Circuitry	Sensitivity 1.8-30 MHz †	RIT/XIT Range	Audio Output	List Price
FT-1000D	100 kHz - 30 MHz	117/234		1050 VA	95 VA	50 W	200 W	200 W	200 W	500-600 Ω	Quad Conversion	< .25 µV	±9.975 kHz	2 W	$5,359.95
FT-100MP	100 kHz - 30 MHz	117/234	13.5 VDC	550 VA	80 VA	25 W	100 W	100 W	100 W	500-600 Ω	Triple Conversion	< .25 µV		2 W	$3,599.95
FT-990	100 kHz - 30 MHz	117/234	#	470 VA	60 VA	25 W	100 W	100 W	100 W	500-600 Ω	Triple Conversion	< .25 µV	±9.975 kHz	2 W	$2,759.95
FT-900AT	100 kHz - 30 MHz		13.8 VDC				100 W	100 W	100 W						$1,719.95
FT-840	100 kHz - 30 MHz		13.8 VDC	20 A	1.2 A	25 W	100 W	100 W	100 W	500-600 Ω	Double Conversion	< .25 µV	±1.25 kHz	4 W	$1,099.95
FT-650	24.5 - 56 MHz	120/230	13.8 VDC	500 VA	55 VA	25 W	100 W	100 W	100 W	500-600 Ω	Triple Conversion	< .125 µV	±9.975 kHz	1.5 W	$1,899.95

# The FT-990DC version operates on 13.8 VDC only. † Sensitivity measurements for 1.8-30 MHz SSB,CW

YAESU



HRO
Discount Price
$899.95

FT-840

$1099.95
Suggested List

If you are trading up from an older rig and are on a tight a budget, you want the most you can afford in a top-notch HF transceiver. Then the FT-840 is for you. It is right on the money! Consider a mobile HF or field radio and doubt the quality and features of tiny HF rigs? Then the FT-840 will not disappoint you!

Built to handle rigorous field operation, the new intense LCD display affords sharp visibility in bright sunlight. Die-cast heat sink and internal thermally switched fan keep the FT-840 running cool. Modular design circuit boards ensure operating efficiency with manufacturing excellence you would expect in much higher priced radios.

For high performance, the FT-840 features a low noise front end that uses the latest in FET RF amplifier design. It has two DDSs and magnetic encoder for silent, smooth tuning and fast switching. Twin band-stacking VFOs and automatic 10 m FM repeater offset with selectable CTCSS provide the best for 10 m repeater operation.

Blending the high performance digital frequency synthesis techniques from the FT-840 with the operating convenience and affordability of its predecessor, the FT-747GX, the FT-840 adds a choice of two optional remote automatic antenna tuners and a wealth of convenient functions. The FT-840 sets the standard for high performance, affordable, HF transceivers. As a first time rig, back-up, mobile, or main station transceiver, the FT-840 has the features and dependability that both beginners and seasoned operators will appreciate.

The FT-840 is of top-of-the-line quality with a wealth of features—all at an affordable price. This is just what you would expect from Yaesu. For high-tech performance and a wealth of features that will not break you budget, stop in to an HRO store and see a demonstration.

Features include:

- General coverage receiver from 100 kHz to 30 MHz. TX frequency 160-10 m amateur bands.
- Direct digital synthesis (DDS).
- IF shift.
- 100 memory channels (independent TX/RX per memory).
- Twin Band Stacking VFO's.
- FM repeater operation with automatic 10 meter repeater offset w/ selectable CTCSS encode with optional FM-747.
- CW reverse feature.
- Choice of two optional antenna tuners: FC-10 Matching External Tuner or FC-800 External Remote Tuner.

Microphones

MH-1B8

$39.00
HRO Price

MH-1B8 is the standard hand microphone that is provided with the FT-767GX, FT-757GXII, FT-747GX, FT-990, FT-650, FT-890, FT-1000 and the FT-736R. This microphone has up-down buttons on the top of the unit for controlling the frequency of the radio.

MD-1C8

$139.00
Suggested List
Call for
HRO DISCOUNT
PRICE

- MD-1C8 is the optional desk microphone that will work with all current Yaesu radios. This unit comes with a desk pedestal and has up-down switches and a VOX lock.

MD-100 a8x

$139.95

Suggested List
Call for
HRO DISCOUNT PRICE

The MD-100a8x features selectable low-cut filtering and high-emphasis active filtering that allow you to tailor the microphone response for optimum voice clarity or DX punch.

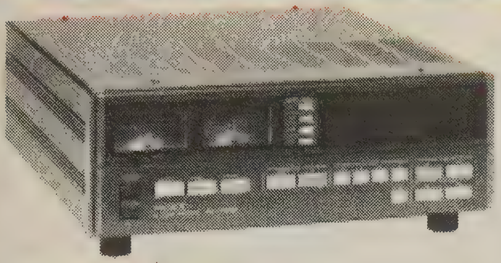
This new desk microphone includes a large push-to-talk switch and latching button, along with a large rotary up/down, slow/fast control for scanning.

The MD-100a8x is especially designed for the FT-1000MP and the FT-900, but can be used with the following Yaesu HF transceivers: FT-747GX, FT-757GXII, FT-890, FT-840, & FT-1000

Note: When using the MD-100a8x with the above Yaesu transceivers, set the MAIN FILTER switch to the THRU position, and the high emphasis active filter is disabled.

HF ACCESSORIES

HF Amplifier



HRO
Discount Price
$2179.95

FL-7000

$2499.00
Suggested List

Designed to match the Yaesu HF radios, the FL-7000 is a CPU controlled, full break-in, all solid state linear amplifier with built-in power supply and automatic antenna tuner. Power is up to 1.2 kW input on the amateur bands.

When changing bands or retuning the radios, the amplifier automatically retunes itself to match the SWR of the antenna. Tuner settings for each band are stored in lithium-backed RAM for instant recall without the need to transmit.

Up to four different antennas can be connected and automatically selected when the optional FAS-1-4R remote antenna relay is used. The amp covers 160 -15 m and may be modified by the amateur for 10 m operation.

Meters

YS-60

$139.95
Suggested List

YS-500

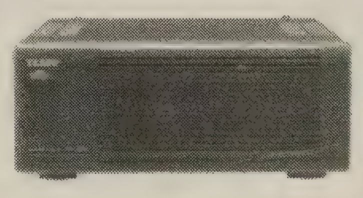
$119.95
Suggested List

Yaesu's in-line SWR / power meters monitor both average and peak transmitter power and voltage standing wave ratio (VSWR) of antenna systems in two way radio stations from 1.6 to 60 MHz (YS-60) or 140 to 525 MHz (YS-500). These compact meters can be located almost anywhere in the station. YS-60 requires 12 VDC for PEP operation.

Power Supplies

FP-757HD

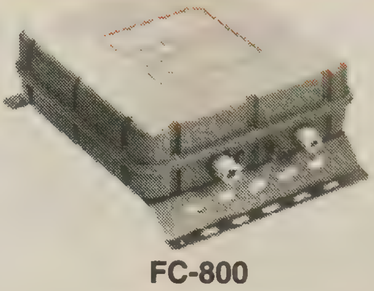
The FP-757HD is a continuous duty power supply with FT-757GX styling but will also go nicely with the FT-747GX or FT-890. To permit long periods of operation there is a built-in cooling fan. For improved operation, a front facing speaker is built-in.
HRO Discount Price $299.95



FP-800

The FP-800 is the matching AC power supply for the FT-890. It can also be used with the FT-990DC. It features a large, front mounted built-in speaker and internal cooling fan. The FP-800 is rated at 20 amps at 13.8 VDC. It operates on 117 or 220 volts AC input.
HRO Discount Price $299.95

Antenna Tuner



FC-800

The FC-800 is an external remote mount, automatic antenna tuner especially designed for the FT-890 transceiver. The tuner is fully automatic and operations can be controlled from the front panel of the FT-890 for easy operations. The FC-800 has 30 memory locations for quick tuning. **HRO Discount Price $489.95**

Programming Kits

NEW!

ADMS-1
for the FT-11 / 41 / 51

ADMS-2
for the FT-8500

Yaesu announces the ADMS-2 PC Programming Kit for the FT-8500. This is another Yaesu first. The FT-8500 is the only dual-band mobile with alphanumeric display and now you can add the speed of PC programming. Save different files for each city and state you visit. A similar kit, the ADMS-1, is available for the FT-11/41/51 handheld. **HRO Price $39.95**

Broadband HF Antenna

YA-30

HRO Discount Price $239.95

Specifications	
Frequency Range	1.8-30 MHz (continuous coverage)
Power Rating	150 watts P.E.P
Input Impedance	50 ohms
Commercial SWR	less than 2:1 fro 1.8 - 30 MHz
Amateur SWR	less than 1.9:1 160 - 10m amateur bands
Antenna Length	83 feet
Coaxial Feedline	100 feet of RG-8X with PL-259

The YA-30 broadband dipole antenna is designed to provide optimum performance over a wide frequency range. The usual requirements for multiple antennas or an antenna tuner between the rig and antenna are eliminated by the unique broadband design. Preassembled and pretuned, the YA-30 antenna can be installed in three different ways (horizontal flattop, inverted-V, or sloper). Specifications are shown in the chart above.

YAESU

Portable All-Mode

FT-290R
2 meter
$629.95

FT-690R
6 meter
$729.95

FT-790R
70 cm
$769.95

All Prices
Are
HRO
Discounts

The Mark II series of all-mode radios operates on 12 volts from your vehicle or, with the optional C-cell battery pack and shoulder strap, use the radio while on foot. Includes SSB, CW, and FM; 10 memories, LCD display, memory of repeater shift and offset tuning for satellite operation. Great for camping trips.

Dual Band Mobile

HRO
Discount Price
$639.95

FT-5100
2 meter & 70 cm
$799.95
Suggested List Price

On this "Ultimate Definition of Dual Band" radio you can listen to two 2 meter frequencies or two UHF frequencies at the same time with the In-Band Dual Receive. The FT-5100 has an expanded 2 meter receive range (130-174 MHz) and transmits on 144-148 MHz. The 70 cm band covers 430-450 MHz on transmit and receive. The radio has 94 memories (47 per band) that will store odd splits. It has built-in CTCSS encode, antenna duplexer, full-duplex cross-band operation, packet radio TNC jack and cross-band repeater function. Output is 50 watts on 2 meters and 35 watts on 70 cm. Best of all, the FT-5100 is "affordable".

Dual Band Mobiles

HRO
Discount Price
$679.95

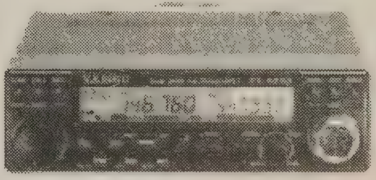
FT-8500
2 meter & 70 cm

Yaesu again demonstrates their leadership in 2-way radio communications with the introduction of the FT-8500 and Smart Controller™ Microphone. The deluxe, compact FT-8500 defines "high tech" in mobile engineering. Just four simple flicks of the Smart Controller™ Microphone joystick-type lever and you command frequencies, memories and every adjustment.

The Smart Controller™ Mike isn't the only engineering advancement. Watch the unique Spectra-Analyzer™ display activity above and below your current operating channel. The DC voltmeter displays your car battery voltage. Work V+V, U+U or V+U frequencies. Selectable 1200/9600 baud and rear-panel data jack for packet.

Other features include:

- Frequency coverage: 2m: RX 110-174 MHz, TX 144-148 MHz. 70cm: RX 420-500 MHz, TX 430-450 MHz.
- 6 character alphanumeric display.
- 3-level auto mute with mute timer.
- Output power: 2 m 50/10/5 W. 70 cm 35/10/5 W.
- 9 memory DTMF autodialer.
- Cloning feature.
- 3 scanning modes, cross band and one way repeat.



HRO
Discount Prices
5200–$669.95
6200–$779.95

FT-5200
2 meter & 70 cm
$839.95

Suggested List Prices

FT-6200
70 cm & 23 cm
$899.00

The **FT-5200** (for the 2 m & 70 cm bands) and **FT-6200** (for the 70 cm & 23 cm bands) provide mobile crossband, full duplex and detachable front panel design. Features include a built-in antenna duplexer, dual full-frequency liquid crystal display (with signal strength / power output bargraphs for each band), 8-level automatic display / button lighting dimmer, and dual external speaker jacks (one for each band).

Other features include:

- 50 watts on the FT5200 (2m). On the FT-6200: 35 watts (70cm), 10-watts (23cm) .
- MW-1 Wireless Microphone / Controller option duplicates the controls (including volume and squelch), adding a DTMF (Dual-Tone, Multi-Frequency) keypad and microphone.
- Paging with the FRC-4 Paging / Selcall option.
- 32 freely tunable memories (sixteen per band) with multiple scanning features.
- An optional cable allows the front panel to be installed separately from the transceiver.
- Built-in 38-tone programmable CTCSS (Continuous Tone-Coded Squelch System) encoder is standard. CTCSS tone squelch operation with the FTS-22 Dual Band CTCSS Decoder option.

VHF / UHF Mobiles

FT-2500M
2 meters

$459.95
Suggested List Price

HRO Discount Price $349.95

The FT-2500M keeps all the great features of the popular FT-2400H and goes one better. The easy-to-operate front panel design has rubber coated knobs and a large amber display. The Yaesu exclusive 3-stage advance track tuning feature reduces intermodulation and front-end overload.

This powerful, rugged mobile is built as close to commercial grade performance as you get in amateur frequencies. A one-piece die-cast chassis and extra large heat sink add toughness. Yaesu brings you the only mobiles with military spec rating.

Convenient features abound: The most often used controls are on the front and those you set and forget are neatly hidden behind a flip up panel. The DTFM microphone is backlit. The CTCSS encode is built-in. Both models come with automatic power off and time-out timer. There are 31 memory channels.

The FT-2500M receives 140-174 MHz and transmits on 144-148 MHz. Power output is 50 / 25 / 5 watts. The backlighting adjustment is either manual or automatic.

Accessories available include: FTS-17A, CTCSS decode unit; FRG-6, DTMF paging unit; SP-4, external speaker; and FP-700, power supply.

HRO Discount Price $499.95

FT-7400H
70 cm

$609.95
Suggested List Price

The FT-7400H takes full advantage of military grade mechanical and electronic construction techniques to bring you a rugged, reliable rig with up to 35 watts power output.

Some features: Backlit LCD display, knobs, and major buttons are automatically controlled by a photosensor. Less-often-needed front panel buttons have a flip-down protective cover. Thirty-one memory channels. Tuning steps are user-selectable from 5 to 50 kHz. 38-tone programmable CTCSS encoder is built-in as standard; decode unit is available as an option. Backlit DTMF microphone is included.

HRO Discount Prices
2200–$379.95
7200–$539.95

FT-2200—2 meters FT-7200—70 cm

$489.95 Suggested List Prices **$619.95**

These full featured mobiles from Yaesu have 50 memories, AM "Aircraft" receive and selectable channel only display. The optional MW-2 wireless microphone allows remote operation up to 25 feet from the radio.

FT-2200 features include:

- Wide receiver coverage, 110-180 MHz.
- 50 memory channels (odd split stored in any memory).
- 10 memory DTMF auto dialer.
- CTCSS encode built-in.
- 110-139 MHz AM "Aircraft" receive.
- High power output 50 / 25 / 5 watts.
- Built-in DTMF paging / coded squelch.
- English and Spanish operations manual included.
- Has a bright, easy-to-read LCD display.
- Includes a back-lit DTMF microphone.
- Accessories available are:
  FTS-27 CTCSS decode unit
  DVS-3 Digital voice system
  MW-2 Remote control wireless mike
  SP-7 External speaker

HRO Discount Price $629.95

FT-912RH – 1.2 GHz

$749.95
Suggested List Price

This radio is a 1.2 GHz model in a small package for mobile use. The unit is 1.6 inches high and weighs just a little more than two pounds. There are an LCD display, 21 memory channels, and multiple scanning features. This radio takes messages just like an answering machine with the optional DVS-1 installed. Includes the MH-15C8 DTMF microphone.

YAESU

SWL Receiver

HRO
Discount Price
$599.95

FRG-100

$719.95
Suggested List Price

This high-performance communications receiver provides general coverage reception in CW, SSB, AM and FM modes for 50 kHz to 30 MHz. Microprocessor control of major functions permits ease of operation and features that both new and seasoned shortwave listeners will appreciate .

Reception modes and most receiver functions are push-button selectable from the front panel. A back-lit LCD with adjustable brightness provides frequency read-out (down to 10 Hz) and important operating status.

Fifty fully-tunable memory channels store frequency, mode and filter selection, two additional memories provide band-edge information used in scanning. Selectable steps of 10 Hz, 100 Hz, 1 kHz are standard–other increments are user programmable.

Multi-function scanning (memory, band, selectable group, priority) with carrier or time-delay resume enables searching for new stations, or scanning within a known band. A special Broadcast Band selection mode permits instant selection of 16 pre-programmed international AM broadcast bands (LW, MW through 11 meters), convenient and instant QSY.

Features adjustable BFO, reverse BFO offset and selectable CW sideband. These prevent having to re-tune signals when changing modes and reduces adjacent signal interference. The optional 250 or 500 Hz crystal filter permits even further enhanced CW reception.

Adjustable SSB carrier offset, selectable AGC rate, noise blanker and all-mode squelch and RF attenuation controls are also provided.

Twin 12/24 hour programmable clocks with hourly time annunciator let you keep local time along with another time zone. The programmable On/Off Timer and Sleep Timer along with a remote control jack at the rear of the radio can switch auxiliary recording equipment at programmed times.

The Yaesu CAT system provides a direct link to the CPU in the FRG-100. This allows a personal computer with the Yaesu FIF CAT Interface Unit to add or customize functions such as automatic tuning and scanning as well as remote control of most receiver functions.

Options include: **FM Unit 100** FM Receiver Unit
TCXO-4 Temperature Compensated Crystal Oscillator

VHF / UHF Base

FT-736R—Multi-Band

$2349.95
Suggested List Price

HRO
Discount Price
$1829.95

Designed to meet the needs of the most demanding VHF and UHF operators, the FT-736R includes 144 and 430-450 MHz as standard. Optional units are available for 50 MHz, 220 MHz and 1.2 GHz.

User installable band modules provide 10 watts output on the 50 MHz and 1.2 GHz bands, and 25 watts on the other bands. This is **THE** radio of choice for satellite operation.

Operating features include IF shift and notch, noise blanker, all-mode VOX and 3-speed AGC. GaAs FET RF amplifiers in the modules above 430 MHz assure low noise and high sensitivity, and a TCXO reference oscillator meets the requirements of specialized UHF applications. One hundred general purpose memories, ten full duplex cross-band memories and five call-channel memories all store mode and receive and transmit frequencies independently.

Fourteen VFOs are provided: two general purpose plus one PMS (Programmable Memory Limit Scanning) on each band, two full duplex VFOs, and up to four clarifier memories. Each of the two full duplex VFOs can be selected so that its receive and transmit frequencies and modes can be displayed and tuned independently, or linked to tune synchronously in opposite directions for satellite operation.

Narrow FM mode reduces adjacent channel interference in crowded areas. Automatic repeater shift and a center tuning meter are useful for FM repeater operation.

A T/R switched DC supply provided for masthead preamps is activated from a front panel switch. AFSK input directly to the modulator is provided for high performance packet operation. The enhanced CAT system allows automation and customization by an external personal computer.

Power the FT-736R from 13.5 V DC or the AC mains through its internal switched mode power supply. Optionals include the TV-736 Amateur Television Modulator / Demodulator, an electronic CW keyer, and the FTS-8 Tone Squelch Unit. The MH1B8 microphone and 600 Hz CW filter are included.

Call HRO's Friendly Staff of Knowledgeable Hams

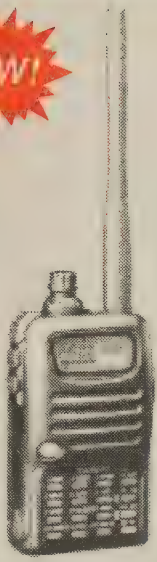
HANDHELDS

NEW!

FT-10R
2 meters

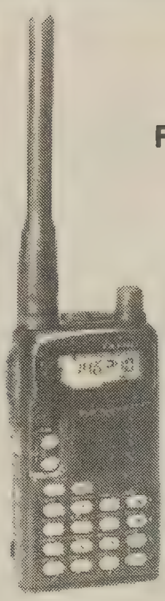
FT-40R
440 MHz

Call for HRO DISCOUNT PRICES



A multitude of exclusive features distinguishes the 2m FT-10R and 70 cm / 440 MHz FT-40R. Foremost is the choice of four keypads. These are the first ham handhelds with a MIL-STD 810 rating.

- 2.5 (FNB-40) or 5 (FNB-41) watts.
- Digital coded squelch encode / decode.
- Battery savers extends battery life.
- Compact, clamshell design, read mounted batteries.
- ARTS, Auto Range Transpond System.
- High audio output design.
- Alpha-numeric display.
- Optional PC programming.
- Dual watch.
- High speed scanning.
- Direct FM improves voice and packet performance.
- Deluxe models have 99 memories and automatic tone search.



FT-11R
2 meters
$389.00

FT-11R-HP
2 meters
$399.00

FT-41R
70 cm
$459.00

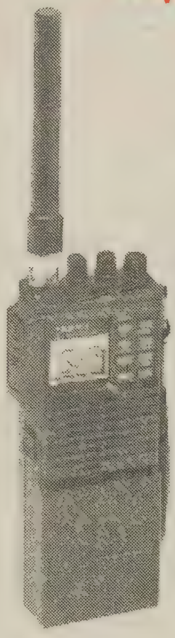
HRO Discount Prices

Yaesu's handhelds are easy to operate. The new FT-11R-HP is a high-power, 5 watt version of this compact handheld.

Features include:

- New compact battery design—4.8 volts produces 1.5 watts output.
- Up/down volume/squelch controls are back-lit.
- Wide receive coverage on FR-11: 100-180 MHz, AM aircraft (110-136 MHz).
- 6 character alphanumeric display.
- MOSFET power module and TX/RX battery savers.
- 5 watts output with 9.6 VDC (optional battery required).
- Large full-sized back-lit DTMF keypad.
- 150 memory channels.
- Built-in DTMF paging / coded squelch.

HRO Discount Prices
23R–$299.95
33R–$319.95



FT-23R
2 meters
$309.00

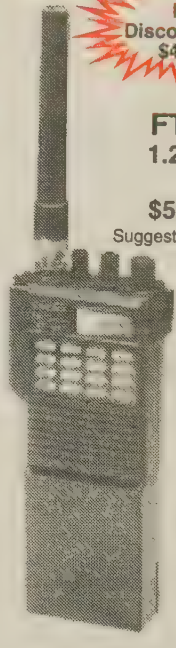
FT-33R
220 MHz
$369.00

Suggested List Prices

Yaesu's original compact handhelds are still available. They offer the budget-minded amateur an attractive handheld. Both models have LCD display with S meter.

- Up to five watts output with optional FNB-12S.
- Multiple scanning options.
- 10 memories with 7 storing odd splits.
- Aluminum alloy case with water resistant seals.
- Optional: CTCSS encode / decode (FTS-12) and DTMF pad (FTT-4).
- Auto battery saver circuit.

HRO Discount Price
$469.95



FT911
1.2 GHz

$569.95
Suggested List Price

This 1.2 GHz ultra-compact full-featured handheld offers features found previously only in larger units.

- 49 memories and 2 VFO's.
- Multiple scanning options.
- Uses the same battery packs as the FT-23 series. The FNB-17 is the standard pack.
- Rubber gasket seals offer protection.
- Standard CTCSS encode / decode included.
- Backlit keyboard and large LCD display.
- Automatic frequency control.
- DTMF encode pad with 10 auto-dial memories and direct key pad entry.
- Automatic power off system.
- VOX operation with optional YH-2 headset.

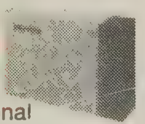
FT-10 2m HT Models

Model	Keypad	Channels	Digital Voice Recorder	Battery Pack	List Price Call for HRO Discount Price
FT-10/40B-A06	6	30	no	FNB-40	$309.00
FT-10/41B-A06	6	30	no	FNB-41	$319.00
FT-10/40B-A16	16	30	no	FNB-40	$339.00
FT-10/41B-A16	16	30	no	FNB-41	$349.95
FT-10/40B-A16D	16	99	no	FNB-40	$369.00
FT-10/41B-A16D	16	99	no	FNB-41	$379.00
FT-10/40B-A16S	16	99	yes	FNB-40	$389.00
FT-10/41B-A16S	16	99	yes	FNB-41	$399.00

Repeaters

Yaesu now offers two Model VXR-5000 synthesized repeaters for amateur use. The VXR-5000V/TA-DC covers 135-148 MHz for 2 meters. The VXR-5000U/TC-DC is for 440 MHz.

NEW!



Features include:

- PC programming with optional VX VPL-1 programming cable.
- 25 watts output at 100% duty cycle.
- 12 VDC at 7 amps power requirement.
- Built-in CTCSS encode and decode.
- PC programmable hang and time-out timers.
- Fits standard 19 inch rack.
- Includes DC power cable, 3.5" disk and service manual.

VXR-5000V / TA-DC	$1399.00
VXR-5000U / C-DC	1399.95
MR-KIT1 19" rack mount kit	218.00
VX VPL-1 PC programming kit	55.00

Suggested list prices. Call for HRO discount prices.

YAESU

DUAL BAND

FT-51R $609.00 / FT-51R / HP $629.00

2 m / 70 cm Dual Band

Suggested List Prices

HRO Discount Prices
51R–$469.95
HP–$489.95

Shown with Optional Speaker Mike

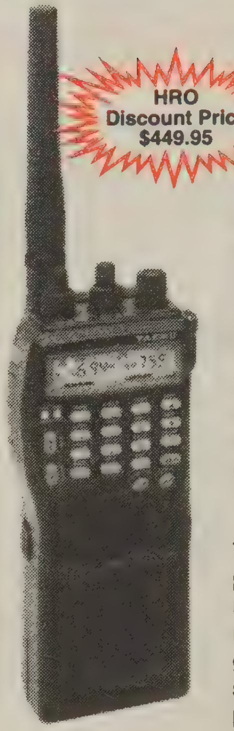
The state-of-the-art FT-51R is so easy to use you won't need an operating manual. Its exclusive, scrolling instruction menu located in the large, backlit display "window" guides you through total operation while simultaneously viewing the main display.

You'll like some of the other features too. Spectrascope™ displays real time, continuous scanning of activity on adjacent channels in VFO mode or 8 of your favorite memories. A cloning feature duplicates favorite channels to another FT-51R. It has digital battery voltage display, five power levels, the largest backlit dual band HT keypad made, Smart Mute™, and two VFOs on both VHF and UHF. It comes in a 2 watt (FT-51R) or 5 watt (FT-51R/HP) model.

The optional MH-29A2B display microphone allows you to control volume, memory access, VFO, call channel, band selection, and scanning functions.

Other features include:

- 5 power output levels from 20 mW to 5 watts depending on battery selection.
- Alphanumeric display; 8 characters per memory channel.
- NEW! ADMS-1 programming software available.
- Built-in DTMF decoder displays 8 characters .
- Scanning light illuminates the display when a busy channel is found.
- 120 memories (80 with alphanumeric display) store alpha, CTCSS, offset, power level, and split information. Multiple scan modes have individual channel lock-outs.
- Built-in crossband and one-way repeat functions.



FT-530

2 m / 70 cm Dual Band

$589.00
Suggested List Price

HRO Discount Price
$449.95

The deluxe compact grandchild of the first-ever dual-band VHF/UHF handheld, the FT-727R, uses dual microprocessor control, permitting easier operation and more features than its predecessors.

The die-cast alloy rear case / heat sink and thick high impact polycarbonate plastic front panel provide professional-grade ruggedness ideal for demanding applications.

The LCD display and translucent keypad have selectable back-lighting modes, provide 5-1/2 digit frequency readouts, and indicators for most programmable functions. Relative signal strength and power output are displayed on separate bar graph meters.

The FT-530 simultaneously reception two frequencies on different bands or the same band. You can mix VHF/VHF or VHF/UHF reception. Separate volume and squelch controls are provided for each band.

FT-530 features include:

- Digital battery voltage display.
- 82 memory channels: 41 freely-tunable memories per band, programmable from the front panel keyboard.
- Extended frequency receive coverage from 130-174 MHz.
- Built-in VOX w/selectable hangtime.
- Clock with alarm / timer functions.
- Dual CTCSS encode / decode built-in.
- DC jack on top panel for power from an external 13.8 VDC source.
- Full-duplex cross-band operation.
- Automatic standard repeater shifts.
- Built-in transmit / receive battery savers.
- DTMF selective calling and private paging capabilities.

Yaesu Handhelds

Model	Frequency	Mode	Pwr Supply	Power Out	Current Transmit	Drain Receive	Sensitivity	Height in (cm)	Width in (cm)	Depth in (cm)	Weight oz (g)	List Price Call for HRO Discount Price
FT-10	144-148 MHz #	FM	6.0 VDC	2.5 W*								See Table
FT-11	144-148 MHz †	FM	4.8 VDC	1.5 W*	900 mA	16 mA	.15 µV / 12dB	3.9 (9.9)	2.3(5.5)	1.0(2.5)	9.5(280)	$389.95
FT-11R-HP	144-148 MHz †	FM	9.6 VDC	5 W	1.5 A @ 5W	17 mA	.15 µV / 12dB	3.9 (9.9)	2.3(5.5)	1.0(2.5)	13.9(400)	$399.95
FT-23R	144-148 MHz	FM	7.2 VDC	2 W*	900 mA	19 mA	.25 µV / 12dB	4.8 (12.2)	2.3(5.5)	1.3(3.2)	15(430)	$309.95
FT-33R	220-225 MHz	FM	12 VDC	5 W	1.3 A	19 mA	.25 µV / 12dB	4.8 (12.2)	2.3(5.5)	1.3(3.2)	15(430)	$369.95
FT-40	430-450 MHz #	FM	6.0 VDC	2.5 W*								See Table
FT-41R	440-450 MHz	FM	4.8 VDC	1.5 W*	900 mA	15 mA	.17 µV / 12dB	3.9 (9.9)	2.3(5.5)	1.0(2.5)	9.5(280)	$379.95
FT-51R	2m/70 cm	FM	7.2 VDC	2.0/1.5 W*	900 mA	195 mA	.15 µV / 12dB	4.5 (12.3)	2.3 (5.5)	1.0 (2.6)	12 (330)	$609.00
FT-51R/HP	2m/70 cm	FM	4.8 VDC	2.0/1.5 W*	1.6/1.9 A	195 mA	.15 µV / 12dB	5.7 (14.6)	2.3 (5.5)	1.0 (2.6)	16.4 (450	$629.95
FT-911	1240-1300 MHz	FM	7.2 VDC	1W	900 mA	150 mA	.2 µV / 12dB	4.8(12.2)	2.3(5.5)	1.3(3.2)	13(380)	$569.95
FT-530	2m/70 cm	FM	7.2 VDC	2.0/1.5 W*	900 mA	190 mA	.18µV/12 dB	5.3(13.4)	2.3(5.5)	1.3(3.3)	18(530)	$589.95

* Power output can be increased depending on the battery pack selected † Extended receiver range and AM aircraft capabilities # Extended receiver ran

HANDHELD ACCESSORIES

Yaesu Handheld Accessories

Accessory	Model	10R 40R	11 41	51R	23R 33R 73R	26 76	209R H109 RH70	103R 203R 703R	411 811 911	415 815	416 816	470	530	HRO Price
Headset/Boom Mike	YH-2				*	*	*	*	*	*	*	*	*	$35.95
VOX Headset	VC-22		*											$59.95
VOX Headset	VC-23	*												$59.00
Speaker/Mike	MH-12		*		*	*	*	*	*	*	*	*	*	$50.95
Speaker/Mike	MH-32		*		*	*	*	*	*	*	*	*	*	$40.95
Speaker/Mike	MH-34A2B	*												$40.00
Speaker/Mike Lapel	MH-19		*		*	*	*	*	*	*	*	*	*	$46.95
Speaker/Mike w/Display	MH-29			*									*	$109.95
Ear Piece Mike	MH-37A2B	*												TBA
Tone squelch	FTS-6						*							$53.95
Tone squelch	FTS-12				*									$62.95
Tone squelch	FTS-17A					*			std	std	std	std	std	$62.95
CTCSS Decode	FTS-26											*		$59.95
DC/DC adapter	PA-3						*	*						$39.95
DC/DC adapter	PA-6				*				*			*		$30.95
DC/DC adapter	PA-10A		*	*										$66.95
DC/DC adapter w/filter	EDC-5B	*				*				*	*		*	$25.95
Mobile bracket	MMB-32A				*				*					$14.95
Mobile bracket	MMB-46											*		$15.95
Wall charger 117 VAC	NC-9B						*	*						$14.95
Wall charger 117 VAC	NC-18B				*	*	std	*	*	*	*	*	*	$15.95
Wall charger 117 VAC	NC-28B				*	*			std	std	std	std	std	$15.95
Wall charger 117 VAC	NC-34B					*								$15.95
Wall charger 110 VAC	NC-60B	*												$16.00
Wall charger 220 VAC	NC-9C						*	*						$15.95
Wall charger 220 VAC	NC-18C				*		*	*	*	*	*	*	*	$16.95
Wall charger 220 VAC	NC-28C				*	*			*	*	*	*		$16.95
Wall charger 220 VAC	NC-34C				*	*			*	*	*	*	*	$16.95
Mobile charger	CD-2			*										$99.00
Quick charger	NC-37				*				*			*		$119.95
Quick charger	NC-50	*	*	*	*	*			*	*	*	*	*	$103.95
Battery 200 mAh 7.2V	FNB-9				*				*			*		CALL
Battery 600 mAh 12V	FNB-12S				*				*			*		$71.95
Battery 1000 mAh 7.2V	FNB-14				*				*			*		$71.95
Battery 600 mAh 7.2 V	FNB-17				std				std			std		$52.95
Battery 600 mAh 7.2 V	FNB-25					std				std	std		std	$53.95
Battery 1000 mAh 7.2 V	FNB-26					*				*	*		*	$83.95
Battery 600 mAh 12 V	FNB-27					*				*	*		*	$83.95
Battery 600 mAh 4.8 V	FNB-31		*	*										$57.95
Battery 1000 mAh 4.8 V	FNB-33		*	*										$83.95
Battery 600 mAh 9.6 V	FNB-38		*	*										$83.95
Battery 650 mAh 6.0 V	FNB-40	*												$47.00
Battery 600 mAh 9.6 V	FNB-41	*												$57.00
Battery 1100 mAh 9.6 V	FNB-42	*												TBA
Battery case	FBA-5A						*	*						$19.95
Battery case	FBA-12					*				*	*		*	$23.95
Battery case	FBA-14		*	*										$21.95
Battery case AA batteries	FBA-15	*												$23.00
Battery case AA batteries	FBA-17				*				*			*		$25.95
Radio case FNB-11	CSC-38								*					$22.95
Radio case FNB-9/FNB-17	CSC-43											*		$22.95
Radio case FNB-12	CSC-45											*		$22.95
Radio case FNB-25	CSC-50									*	*			$22.95
Radio case FNB-26/27	CSC-52									*	*			$22.95
Radio case FNB-25/FBA12	CSC-53					*								$22.95
Radio case FNB-26/27	CSC-55					*								$22.95
Radio case FNB-25	CSC-56												*	$22.95
Radio case FNB-26/27	CSC-58												*	$22.95
Radio case FNB-41/FBA-15	CSC-68	*												$22.00
Radio case FNB-40	CSC-69	*											*	$22.00

Yaesu Handheld Batteries and Chargers

Battery	Voltage VDC	Rating mAh	Wall Charger	Desk Charger	Radio Series	HRO Price
FNB-2	10.8	425	-	NC-8	FT-208/708	$49.95
FNB-4A	12	500	NC-18	NC-15	FT-727/109/209/709	$64.95
FNB-9	7.2	200	NC-27	NC-37	FT-23/33/73/411/470	CALL
FNB-12S	12	600	NC-18	NC-37	FT-23/33/73/411/470	$71.95
FNB-14	7.2	1000	NC-34	NC-37	FT-23/33/73/411/470	$71.95
FNB-17	7.2	600	NC-28	NC-37	FT-23/33/73/411/470	$52.95
FNB-25	7.2	600	NC-28B	NC-50	FT-26/76/415/416/ 530/815/816	$55.95
FNB-26	7.2	1000	NC-34B	NC-50	FT-26/76/415/416/ 530/815/816	$83.95
FNB-27	12	600	NC-18B	NC-50	FT-26/76/415/416/ 530/815/816	$83.95
FNB-31	4.8	600		NC-50	FT-11/41/51	$57.95
FNB-33	4.8	1000		NC-50	FT-11/41/51	$83.95
FNB-38	9.6	600		NC-50	FT-11/41/51	$83.95
FNB-40	6	650	NC-60	NC-50	FT-10R/40R	$47.00
FNB-41	9.6	600	NC-60	NC-50	FT-10R/40R	$57.00
FNB-42	9.6	1100	NC-60	NC-50	FT-10R/40R	TBA

NC-50
Charger Adapters

The NC-50 quick batter charger supports most Yaesu handheld batteries. An appropriate adapter will be required. The adapters and batteries supported are shown in the table below.

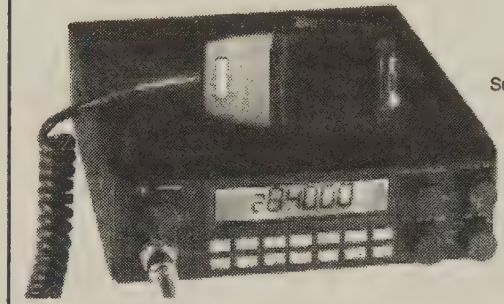
Model	Batteries Supported	HRO Price
CA-7	FNB-12/14/17	$25.95
CA-8	FNB-25/26/27	$25.95
CA-10	FNB-31/33/38	$17.95
CA-14	FNB-40/41/42	$25.00

MORE HAM RADIOS

Amateur 10M Mobiles

RANGER
Communications, Inc.

Choose from two Ranger 10 meter amateur transceivers. For low power use, the RCI-2950 with 25 watts PEP should be your selection. For those higher power requirements, the RCI-2970 100 watt unit is now available.



RCI-2950

$449.95

Suggested List Price
Call for HRO
Discount Price

Ranger's RCI-2950 is all you'd expect in a top-of-the-line amateur radio transceiver and more. Built to exacting specifications for reliability, it provides a wealth of features. It has full band coverage and all-mode communications. The ten most used frequencies can be pre-programmed for easy access. This is the perfect radio for 10 meter mobile use.

Specific features include:

- Full band coverage 28.0 - 29.6999 MHz.
- All mode operation (USB, LSB, CW, AM, FM).
- Large, easy-to-read backlit LCD display with four-step LCD brightness control.
- Tuning steps 100 Hz; 1, 10, & 100 kHz, 1 MHz.
- CTCSS encoder / decoder (optional).
- Repeater offset switch with standard offsets.
- Built-in dual VFO.
- Noise blanker.
- RIT for fine tuning up to ±3 kHz.
- Selectable programmable tone.
- Squelch eliminates background noise.
- Transmitter output of 25 W PEP for SSB, 12 W CW and 8 W AM / FM.
- RF gain control and RF power selector.
- Multi-function LCD meter shows transmit power, receive signal strength, modulation, and SWR.
- Receive sensitivity AM 0.5 µV, SSB .15 µV, FM .25 µV.

RCI-2970

$599.95

Suggested List Price
Call for HRO
Discount Price

Ranger's newest10 meter HF transceiver has similar performance and features to the RCI-2950. It provides **100** watts PEP output for ten meter amateur operations. This will be perfect as the band conditions decline. Dimensions: 15" long, 10" wide and 6.25" high.

2 M / 440 MHz Transceivers

ADI
CORPORATION

NEW!

FM Mobiles

ADI Corporation how has two FM mobile transceivers for the ham operator: the AR-146 for 2 M and the AR-446 for 70 cm.

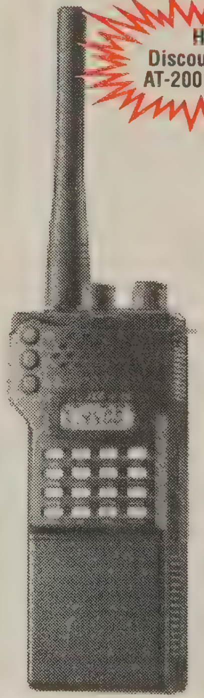
Major features include:

- 40 memory channels plus one call channel.
- Band scan, memory scan, program scan.
- DTSS with page function.
- 41 independent CTCSS memory setup functions.
- Multifunctional microphone with DTMF keys.
- 3-position RF output power control.
- 50 W maximum out for AR-146; 35 W for AR-446.
- Auto power off function.
- 30 minute time-out transmission timer.
- S-meter squelch.
- Programmable VFO.
- Dual watch operation.

Options include:
CTC 146 – CTCSS unit
DTS 146 – DTMF unit
SP 146 – External speaker

AR-146 2m mobile transceiver	$320.00
AR-446 70cm mobile transceiver	346.00

Call for HRO's LOW Discount Prices



HRO
Discount Price
AT-200:$179.95

Handhelds

AT-200 – 2 Meters
AT-400 – 440 MHz

ADI Corporation has tiny handhelds with output power up to 5 watts using an optional battery or external 13.8 V power supply. The AT-200 transmits on the amateur 2-meter band and receives 130-170 MHz. The AT-400 transmits on the amateur 70 cm band and receives 400-480 MHz.

NEW!

Features include:

- 20 non-volatile memories.
- 16-digit DTMF tone pad with monitor.
- CTCSS encode / decode included.
- Programmable non-standard shifts.
- VFO / memory scan.
- Battery save; automatic power off.
- Dual frequency watch.
- Backlit LCD display and DTMF pad.
- One-touch open squelch check.

AT-200 2m handheld	$219.95
AT-400 70cm handheld	TBA

SGC

HRO
Discount Price
$1799.95

SG-2000
$1995.95
Suggested List Price

SGC has added an all-frequency HF transceiver to its line of fine products. The SG-2000 is a rugged commercial grade HF transceiver that provides 150 watts PEP output. It comes programmed with 644 ITU channels and 100 user defined channels that can be set to ham frequencies. The transmit frequency range is 1.8 to 30 MHz; receive range is 500 kHz to 30 MHz.

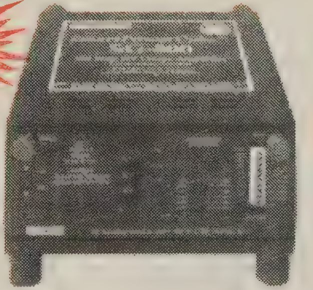
The SG-2000 can be fully controlled by any standard RS-232 protocol connector. This allows easy implementation of all digital modes. The front panel can be removed to act as a remote head.

For more information on this HF transceiver, contact your nearest HRO store.

Note: This radio must be special ordered.
Pictured with OPTIONAL handset.

HF Amplifier

Call for HRO
Discount Price

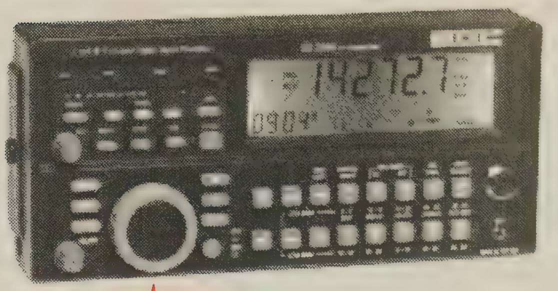


SG-500
$999.95
Suggested List Price

The SmartPowerCube produces tremendous power–nearly as much as a 1 KW amplifier. Yet it requires less than one cubic foot of space. Electronic brain power makes this possible. The SG-500 is an intelligent, microprocessor controlled, high-powered linear amplifier, designed with high efficiency transistors. Its electronic brain constantly monitors your HF-SSB's activities, power needs and antenna condition, and automatically7–in less than 15 milliseconds–selects the right broadband filter. It is designed to reliable produce, essentially unattended, in the most demanding conditions. Power supply required. SGC PS50 recommended to guarantee specifications. **The amplifier is available only for export.**

Features include:

- Fully automatic band switching, 12 VDC.
- Input overdrive, over temperature, over current protection.
- Frequency coverage 1.8-24 MHz.
- Power output
  SSB: 500 watts PEP
  CW: 500 watts for 10 minutes
  500 watts continuous with fan
  AM: 250 watts carrier maximum



HRO
Discount Price
$2299.95

SG-2000ADSP
$2495.95
Suggested List Price

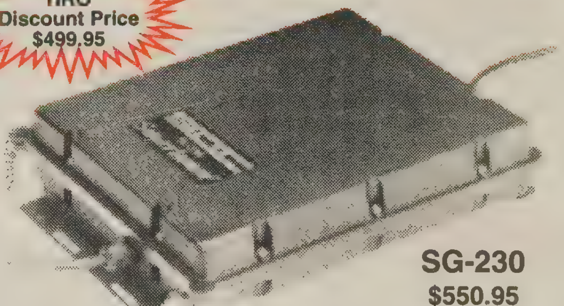
The PowerTalk™ SG-2000 packs advanced ADSP and SNS technology into a slim, state-of-the-art, control head. PowerTalk™ greatly increases signal clarity and drastically reduces noise, providing unsurpassed signal quality on the HF bands. You'll be able to hear more and do more with SGC's precision tuning features.

An array of bright red and green LED's provides precise visual tuning of high, low, and center frequencies. Preset and user-programmable memories allow quick recall of ADSP, SNS, and high, low, center, and notch filter settings for easy operation. A high performance spinner knob gives you hands-on tuning.

PowerTalk™ SG-2000 features 644 ITU and ham frequencies, including SITOR/AMTOR/PAKTOR telex channels, permanently etched into memory, plus 100 user-programmable frequencies and easy Weatherfax connections. It has 150 watts of power, an extra-large, extra-bright LCD display, and the latest surface mount technology. PowerTalk™ is a no compromise HF-SSB Power Tool.
Note: This radio must be special ordered.

Automatic Tuner

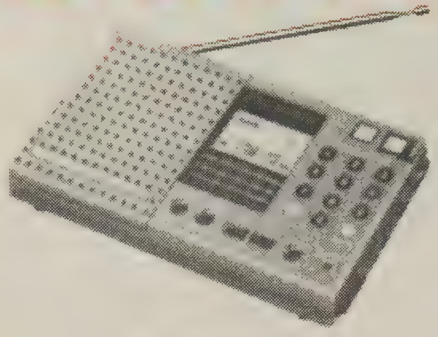
HRO
Discount Price
$499.95



SG-230
$550.95
Suggested List Price

The SG-230 Smartuner is a fully automatic antenna tuner that will tune any length antenna 8 to 80 feet for the HF bands. The SG-230 automatically evaluates and switches 64 input and 32 output capacitor combinations plus 256 inductance combinations in a pi network design. The tuner remembers the chosen frequency and tuning values and automatically reselects those values when transmitting on that frequency. For more information see page 86.

SONY



ICF-SW7600G

$229.95

Suggested List Price

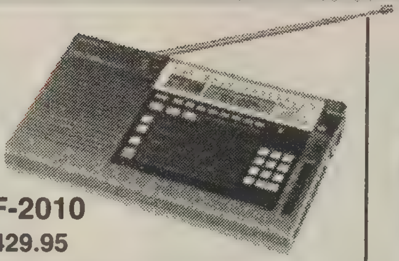
Explorers and travelers love this versatile World Band Radio® receiver with stereo FM reception and instant access to all channels and bands. The built-in clock timer with sleep and stand by functions comes in handy. Features include:

- AM (LW, MW, SW) / FM stereo reception is provided over a wide range of frequencies from LW and MW to SW and FM.
- Dual-conversion superheterodyne circuitry on the shortwave bands provides high sensitivity and interference rejection.
- 10-key Direct Access™ tuning allows station selection with the ease of a pocket calculator.
- PLL quartz frequency synthesis tuning gives accurate, drift-free frequency selection.
- SSB circuitry for reception of voice and Morse code (CW) on amateur bands.
- Manual and automatic scan tuning provides for easy frequency selection.
- Antennas include a built-in ferrite bar for MW and LW and a telescoping whip.
- An antenna jack is provided for the easy connection of external antennas.
- A large 3" speaker and tone selection provides a wide range of sound with easy adjustment.
- The display is liquid crystal (LCD).
- A high / low tone adjusts for music or news.
- Requires 4 AA batteries (not included) or the optional worldwide AC adapter.

SWL Antenna

AN-1

This wide range active antenna for the short wave listener with space problems has a frequency range of 150 kHz to 30 MHz. Features a low noise FET in the built-in preamp. Built in attenuator. Requires 6 AA batteries or AC-12 adapter. Has a wide range of adapters for connecting to Sony radios. Antenna can be used inside or mounted outside. The AN-1 comes with 39 feet of cable. **HRO Price $99.95**



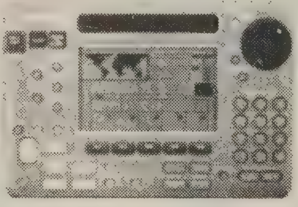
ICF-2010

$429.95

Suggested List Price

The most popular portable SWL receiver on the market is a super-compact world band radio that delivers fast direct access tuning with the utmost accuracy. Key features include:

- AM coverage from .150-29.999 MHz.
- FM broadcast band coverage.
- Dual PLL quartz frequency tuning assures optimum stability and reduces drift.
- Built-in quartz clock and 65 minute Sleep Timer with 15, 30 or 60 minute settings.
- Has BFO for receiving USB, LSB and CW.
- 32 station memory presets for instant recall.
- Memory scan tuning samples preset stations.
- Automatic band scan gives a brief sample of each station on the selected band.
- Switchable IF bandwidth with "narrow" mode.
- Comes with the AC-D3 adapter.
- The clock requires 2 AA batteries (not included). **These must be installed for the radio to operate.**



ICF-SW55

$429.95

Suggested List Price

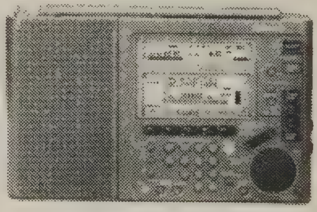
The ICF-SW55 is the step-up model for the ICF-SW7600. It includes 100 station memory presets with the ability to display station name (up to 99 page labels). Tune with 1kHz resolution by rotary dial or 10-key Direct Access™. Step and scan tuning are also included. The ICF-SW55 features SSB reception for amateur voice and Morse code broadcasts. The ROM memory eliminates the need for a battery backup. FM stereo reception is also featured. Know the time anywhere with the built-in world clock.

ICF-SW100S

$449.95 Suggested List Price

The heart of this complete world-band radio system is a multi-band receiver the size of a cassette case. It weighs only 8 ounces with batteries. The kit provided includes a carrying case, active antenna, multi-voltage AC adapter and in-the-ear stereo headphones. Major features include:

- Covers FM 76-108 MHz, 150 kHz to 29.995 MHz plus SSB.
- Access frequencies directly with 10-key pad.
- 50 station memory presets.
- Band selector for quick access to the SW bands.
- Auto-scan searches a band for signals and stops for 1.5 seconds.
- LCD readout with 24 city name/time display.
- Built-in clock with alarm, sleep timer and dual stand-by.
- Two position tone control.
- Separate active antenna for better SW reception.
- Requires 2 AA batteries (not supplied) or may be powered with the AC adapter included.
- Jack for an external speaker, external antenna and DC in (3 volts).



ICF-SW77

$624.95

Suggested List Price

The ICF-SW77 is the step-up model of the popular ICF-2010. It has provisions for 150 station memory presets to find your favorite station quickly. For better tuning, the ICF-SW77 features 50 Hz tuning resolution and you can enter the name of the station and it will display when the particular memory is selected.

SWL RECEIVERS

ICOM

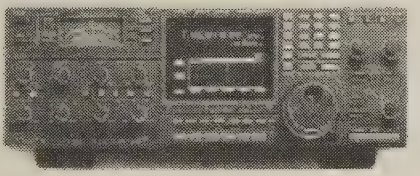
R-7100

$1850.95

Suggested List Price
Call for HRO DISCOUNT PRICE

Stay on top of the world with the versatility of the latest VHF and UHF technology. The receiver has wideband, continuous coverage from 25 to 2500 MHz (800 MHz blocked). (Specifications are guaranteed from 25-1000 MHz and 1240-1300 MHz.) All modes are covered. With the optional TV-R7100, view TV broadcasts on your CRT monitor and listen to FM broadcasts in stereo. Other features include:

- Dial and keyboard entry tuning.
- 900 numbered memory channels.
- Multiple scanning capabilities with new window scan.
- Built-in clock and timer operations.
- AC/DC power operation.
- Options: CI-V system with CT-17; UT-36 English frequency announcement.



R-9000

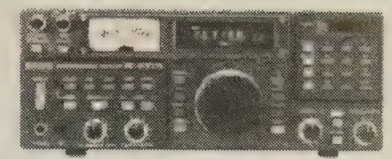
$6825.95

Suggested List Price
Call for HRO DISCOUNT PRICE
***Notice: Federal and State Government Agencies and Communications Customers Only**

Icom's top-of-the-line receiver is truly professional. It receives from 100 kHz to 1999.8 MHz*. Eleven separate bandpass filters use GaAsFETs for the VHF and UHF bands. All modes are included: LSB, USB, CW, AM, FM, WFM (wide-FM) and FSK.

The receiver features Icom's unique, state-of-the-art multifunctional CRT display with spectrum scope. The display provides information on the status of the radio as well as the incoming signals. It shows contents of the memories, dual clocks, weekly and daily timers, and frequency information of the dual VFO's.

The display doubles as a spectrum scope showing a maximum of ±100 kHz. Dynamic range is 60 dB and sensitivity is approximately 1μV.

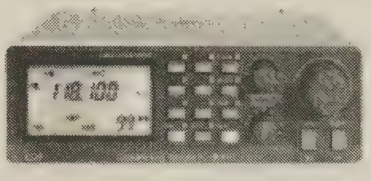


R-71A

$1440.95

Suggested List Price
Call for HRO DISCOUNT PRICE

The sophisticated IC-R71A (covering 100 kHz to 30 MHz) will keep you in touch with the world at all times. The IC-R71A is a versatile, multi-function receiver built for superior performance. It includes a 100 dB dynamic range, RF preamp, adjustable noise blanker, selectable AGC and tuning control or keyboard frequency selection.



IC-R100

$850.95

Suggested List Price
Call for HRO DISCOUNT PRICE

Here's a great full-coverage receiver for mobile use. With FM, FM wideband and AM modes and frequency coverage of 100 kHz to 1.8 GHz (800 MHz blocked), the IC-R100 tunes in all frequencies of interest. It has scanning, memory and priority features to locate stations quickly. 100 memory channels store mode, RF attenuator and preamplifier settings. Features a 24-hour clock, 15dB preamp for 50-905 MHz, 20 dB RF attenuator, multiple tuning steps, all-mode squelch, AFC for frequencies above 50 MHz, automatic noise limiter, mobile mounting bracket, wire and telescoping antennas. Perfect for the serious scanner buff. AC power supply for home use: $44.95

SANGEAN

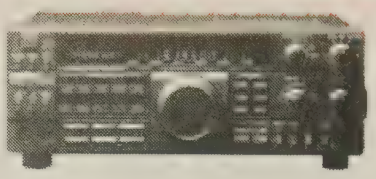
ATS-818CS

$359.95

Suggested List Price
Call for HRO DISCOUNT PRICE

Sangean's portable world band receiver with built-in cassette recorder offers more features and performance than many table-top short wave receivers. It covers all SW bands from 120m to 11m, features a clock alarm, BFO for SSB and CW, FM broadcast band coverage, memories, dual time display and RF gain control.

KENWOOD



R-5000

$1179.95

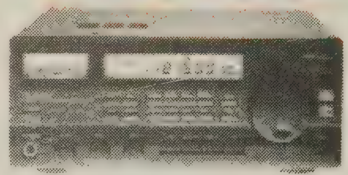
Suggested List Price
Call for HRO DISCOUNT PRICE

This competition class communications receiver has every conceivable feature required by the serious shortwave listener. It is designed to receive all modes (LSB, USB, AM, CW, FM) from 100 kHz to 30 MHz. With the optional VC-20 converter unit coverage is extended to include 108 - 174 MHz.

Major features include:

- 102 dB dynamic range.
- Dual high and low impedance antenna terminals.
- Keyboard frequency selection for direct entry.
- 100 memory channels store frequency, mode and antenna selection.
- Dual 24 hour clocks with timer.
- Built-in AC power supply.
- 100 VAC only; UL approved.
- Operate 12 VDC with optional DCK-2.

YAESU



FRG-100

$669.95

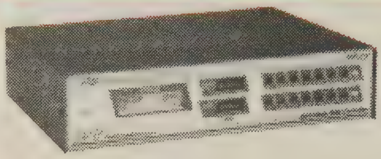
Suggested List Price
Call for HRO DISCOUNT PRICE

Yaesu's high performance receiver provides general coverage reception in CW, SSB, AM and FM modes from 50 kHz to 30 MHz. Features include:

- LCD display with 10 Hz read-out.
- 50 fully tunable memory channels.
- Selectable standard tuning steps plus user-programmable steps.
- Multi-function scanning.
- Adjustable BFO with selectable CW sideband.
- Optional FM unit and CW filters.
- Broadcast band selection mode.

AEA

Multi-Mode Data Controllers



Digital Signal Processors

DSP-2232 MBX $999.00
DSP-1232 MBX $789.00

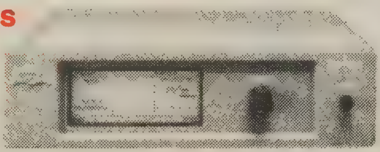
Suggested List Prices–Call for HRO Discount Price

Both controllers use digital signal processing (DSP) technology with the Motorola 56001 processor. Two digital signal processors are built into the DSP-2232 for dual simultaneous ports. Full MailDrop facilities for packet PACTOR and AMTOR. Built-in software modems include all PK-232 modems, all satellite modems (400, 1200, 4800 and 9600 eq bps for PACSAT and OSCAR), 9600 bps K9NG / G3RUH, analog FAX HF and APT, analog SSTV, 2400 bps DPSK and more! Dual simultaneous ports let you gateway from packet to AMTOR, packet to PACTOR, and packet to packet. A multipurpose LCD display keeps you on top of all activity: PACTOR, gateway, up/down doppler shift for PSK modems, and up/down frequency stepping to control the radio's frequency. Cable and connectors included. 12 VDC required. Single port on DSP-1232 and no LCD (fully upgradable to DSP-2232). Limited warranty.

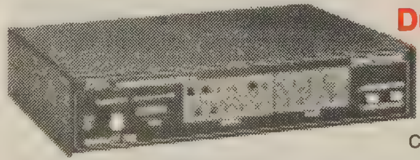
Dual Simultaneous Radio Ports

PK-900 $569.00

Suggested List Price
Call for HRO Discount Price



The best non-DSP multi-mode controller available now has GPS capability. Remote GPS command programming, stand alone tracking, remote polling, and many other GPS features are included! The firmware is compatible with GPS, Loran, ARNAV, and Ultimeter II. It has all the modes and features of the PK-232, plus much more! Features dual simultaneous ports: true Gateway from packet to AMTOR, packet to PACTOR, and packet to packet, even Gateway as a node. Allows VHF Packet users on to Port 2 to monitor and link to other AMTOR, PACTOR and even packet stations using an HF radio on Port 1. Full MailDrop facilities for packet, PACTOR and AMTOR. Superior HF filtering and true DCD state machine. Memory ARQ. Large, easy-to-read LCD panel keeps you informed of all activity. 9600 bps modem upgrade available. HF WeFax software available–AEA FAXIII900. External AFSK pots for both ports. Cables and connectors included. Limited one year warranty.



Dual Radio Ports

PK-232 MBX
$379.00

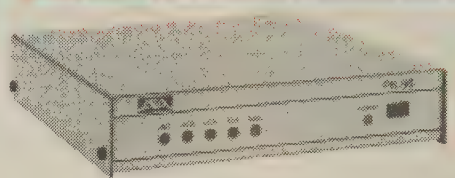
Suggested List Price
Call for HRO Discount Price

GPS firmware allows remote GPS command programming, remote polling, stand-alone stacking, plus much more! WB4APR's APRS compatible on HF or VHF packet. Compatible with GPS, Loran, ARNAV and Ultimeter II weather stations. PK-232 MBX modes include: Packet (45 to 1200 bps and optional 2400 bps), AMTOR/SITOR, PACTOR, Baudot, ASCII RTTY, ARQ and FEC, Morse Code, WeFax, and Gateway. It receives NAVTEX/AMTEX and TDM. It has two switchable radio ports. DCD threshold control on front panel. Node operation with Gateway. Superior filter design provides superior HF performance. Built-in 18K personal mailbox provides MailDrop facilities for packet, PACTOR and AMTOR, SIAM for automatic RTTY signal detection, KISS mode for TCP/IP compatibility. Hardware HDLC. External AFSK adjustment, scope out and SW key out jack. Cables included. Limited one year warranty.

Upgrade Your AEA Data Controller!

Upgrades for previously purchased AEA data controllers are available only from the factory. Call AEA's Upgrade Hotline (206) 774-1722 for more information or write: AEA Upgrade Office, P.O. Box C2160, Lynnwood, WA 98036.

Packet Data Controllers



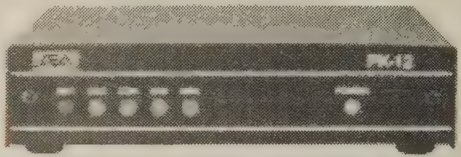
PK-96 9600 & 1200 bps Packet TNC

32K RAM (18K Mailbox): $229.00
128K RAM (100K Mailbox): $279.00

Suggested List Price–Call for HRO Discount Price

The PK-96, 9600/1200 bps packet TNC has 1200 bps AFSK tone signaling and 9600 bps K9NG- and G3RUH-compatible direct frequency modulation. GPS firmware lets you transmit and receive position information with the included Automatic Packet Reporting System (APRS) software. It allows remote programming of GPS commands, remote polling, and initializes GPS receiver upon power-up. Used as a stand alone tracking device! GPS firmware is GPS, Loran, ARNAV, and Ultimeter II compatible. True DED state machine, hardware HDLC, modem disconnect header, Gateway firmware identifies TCP/IP, NET-ROM, and TheNet stations. TheNet X1J3 option allows the PK-96 to be a 1200or 9600 bps component in a TheNet system. Full MailDrop facilities. An Expert disable command for beginners. Commands let you choose who connects and digipeats through the TNC. Comes standard with PC PakRatt Lite software, the packet-only DOS control program. External TX adjustments for 1200 & 9600 bps, external RX audio. Limited one year warranty.

PK-12 1200 bps Packet TNC



32K RAM (15K Mailbox): $129.00
128K RAM (100K Mailbox) upgrade: $50.00

Suggested List Price–Call for HRO Discount Price

AEA's low-cost, 1200 bps, VHF-UHF packet TNC has global positioning system firmware that lets you transmit and receive position information with Automatic Packet Reporting System (APRS) software included. GPS firmware allows remote programming of GPS commands, remote polling, and initializes the GPS receiver upon power-up. This TNC can parse the GPS information so it can be used as a stand alone tracking device! GPS firmware is GPS, Loran, ARNAV, and Ultimeter II compatible. Gateway firmware lets the PK-12 work as a node for faster throughput. It has an Expert disable command for beginners and commands that let you choose who connects and digipeats through the TNC. Identifies TCP/IP, Net/ROM, and The Net stations. Comes standard with PC PakRatt Lite. The PK-12 is perfect for base station use and is full of features for mobile use–it's small, it's light, it runs on a 9-volt battery, and it has GPS commands–the ultimate mobile feature. Limited one-year warranty.

Packet Software Included with PK-96 & PK-12

PC PakRatt Lite is a packet-only, DOS control program. Features include: on-screen, help menu, screen capture to a log file, 900 line scroll-back buffer, complete macro facility. There are five buffers for pre-programming messages or commands for transmission with a single keystroke.

APRS™ software was developed by Bob Bruniga (WB4APR) for real time packet communications. The program contains a world map which can be scaled from .5 to 2000 miles. Use this program to map and track other APRS mobile or base stations. Each station is given a symbol such as a car or house. You can even create maps of your own city by driving down the streets.

AEA's APRS Adapter Cable

Do you have enough CD-ROM ports for GPS applications? This cable allows any AEA TNC and GPS receiver to connect to just one computer COM port on your computer running APRS software. Laptop computers have one COM port, so the adapter cable is a must. **List price $30.00**

AEA Software–Power & Value

NEW!

PC PakRatt for Windows 2.0

$119.00 HRO Discount Price

PC PakRatt for Windows 2.0 is a true Windows application which allows you to run other programs while controlling your AEA data controller.

Features the ability to send, receive, and display ANSI graphics for PACTOR. Now fully compatible with the new Log Windows 2.0 — run both programs at once and get the best of both the TNC control and logging worlds.

Works with all AEA data controllers. PC PakRatt for Windows 2.0 even supports dual-, tri-, and quad-port operation with two full-featured AEA data controllers. Separate Windows for each TNC's parameters, Mailbox operation, and QSO logging--plus much more!

Requires Windows 3.1 & 4 Mb free hard disk space. Requires August 1991 Firmware or better on your AEA data controller. Limited one year warranty.

MacRatt 2.0

NEW!

$64.95 HRO Price

AEA's control program for the newest Macintosh computers. Works with all AEA data controllers. Separate windows for each TNC's parameters, MailDrop, QSO logging, and many others. Run two AEA TNCs at once, operating all modes. Truely, the best Macintosh TNC control program.

Requires August 1991 Firmware or better in your AEA data controller. Limited one year warranty.

PC PakRatt II

$64.00 HRO Price

IBM-compatible terminal control program for the PK-232. You get Host Mode support for the latest PK-232 command set; QSO logging; fast installation; disk & printer access for all PK-232 functions including PACTOR; SIAM screen for quick & easy signal identification; DOS gateway; supports COM 1-4.

Includes PK-FAX program to display received facsimile images on screen, save to disk, and more. Run PK-FAX without leaving the program. Complete parameter screens. Context sensitive help. Limited one year warranty.

NEW!

Log Windows 2.0

$99.00 HRO Price

Log Windows 2.0 combines logging, rig control, antenna rotator control, and DX Cluster monitoring, with award tracking and reporting. Packet Cluster interface works with any TNC.

Features a "Browser" function to view entries by any criteria you choose; a synthesized voice announcement of DX spots; antenna rotator control capability; the ability to filter spots by band, mode and country; a QSL manager list; the ability to look-up anyone's name and address in your database at anytime–on the fly; and PC PakRatt for Windows 2.0 compatibility.

Import data from logging programs such as CT, Easy-DX, Hyperlog, DXLog, Log View, DX Desktop, PC PakRatt, N6RJ 2nd Op, LogMaster, & DXBase. Complete database for storage of QSO information. Interfaces to SAM and Buckmaster on-line callbooks for automatic display of name and QTH when a call sign is entered. Award types: ARRL DXCC, WAS, VUCC, & CQ Zone and US-CA awards. Report types include: Summary, Full report, Countries/states/zones worked, Countries/states/zones needed, QSLs sent, QSLs needed, & Award tag types (not tagged duplicates). Requires Windows 3.1 or better, 4 Mb RAM, VGA display. Limited 1 yr warranty.

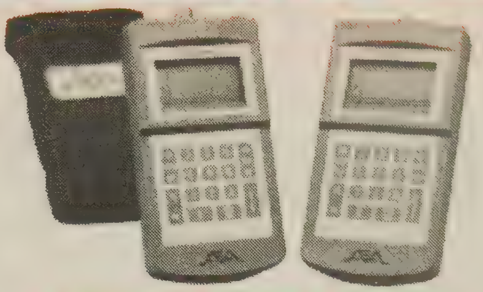
AEA FAX III

NEW!

$99.00 HRO Discount Price

AEA FAX III is a multi-shade, gray scale fax receiving system with color enhancement for your PC-compatible computer. The hardware (demodulator included) and DOS software allow you to receive and display facsimile, wire photo images, CW, NAVTEX, and RTTY. Allows 16 gray levels and 256-color enhancement on WeFax images. AEA FAX III is easy to use out of the box. Simply plug in the demodulator, install the software, and you're ready to receive highly detailed images. 5-1/4" and 3-1/2" disks included. Supports VGA, CGA, and EGA. VGA recommended for colors and detailed grays. Limited one year warranty.

Test Equipment



SWR-121 Antenna Analysts

The SWR-121 handheld Antenna Analyst provides comprehensive antenna performance information in an easy-to read graphic format. The LCD spectrum display plots the SWR curve for the antenna. Displays return/loss measurement for the coax on the LCD readout. Graphs SWR vs. bandwidth over your selected range. Displays the results of antenna adjustments on-the-spot.

Two models available: frequency coverage of the SWR-121 HF is 1 to 32 MHz. SWR-121 V/U is 120-175, 220-225, and 400-475 MHz. Can be powered by battery or 12-16 VDC (not supplied). Commercial models available. **HRO Price SWR-121 HF $349.95; SWR-121 V/U $399.95.**

Optional AACOM software enables the SWR-121 HF and V/U to link to a PC computer. Control the unit from the computer keyboard and down load SWR plots to the computer for printing or saving to disk for future reference. **Suggested List Price: $75.00.**

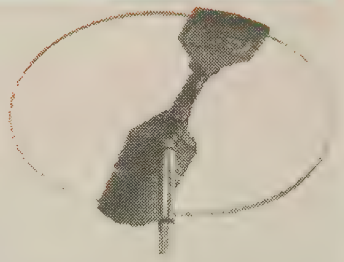
NEW!

DM-1 Deviation Meter

Measures deviation of FM transmitters operating in the 144, 220, and 440 MHz bands. Two deviation ranges allow accurate measurement of voice, data, DTMF, and subaudible deviation. Comes with ten segment LED bar display, crystal controlled tuning, includes output for an external digital or analog meter, and an audio output. Battery powered (batteries not included) Limited warranty. **HRO Price $149.00.**

Antennas

IsoLoop Model 10-30 HF Antenna



AEA's omnidirectional 35" loop antenna covers 10-30 MHz continuous (including 12, 15, and 17 meters). It is ideal for apartments or any other area where there are antenna restrictions. Also a great option for those who want to avoid paying for high priced yagi and tower guy wires, rotators, construction permits, etc.

The IsoLoop is isolated from the feedline to keep stray RF to a minimum. Narrow bandwidth reduces TVI potential and attenuates out-of-band signals. Handles up to 150 watts. The LC-2 IsoLoop controller, power supply, and 50 ft of control cable supplied. **HRO Price $329.95.**

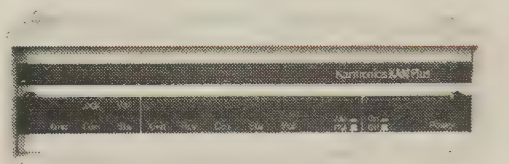
The optional IT-1 IsoLoop Auto Tuner holds up to eight preset tuning locations. Use the thumbwheel knob for manual control or use the 12-button keypad for auto tuning. **HRO Price $249.95.**

IsoPole VHF / UHF Antennas

Three models available: 144, 220, and 440 MHz. These patent-protected antennas provide the maximum gain possible for their respective lengths. Zero degree angle of radiation gives maximum range. Exceptional decoupling results in simple tuning, and reduction in TVI potential. Broad frequency coverage. Typical SWR less than 1.4 to 1 or better across the entire band. Mast not included. **List Price 144 $59.; 220 $59.; 440 $89.**

Kantronics

KAM Plus



Modes: VHF / HF Packet, RTTY / ASCII, AMTOR (476 and 625), CW, NAVTEX, Host Mode, Kiss Mode (TCP / IP), Gateway, Weather Facsimile (WEFAX), KA-NODE, PBBS (personal packet bulletin board), REMOTE Access, GPS, PACTOR on HF and G-TOR on HF.

PBBS can be accessed on Packet, Pactor or AMTOR Mode A (ARQ). PBBS supports Bulletin ID's forwarding and reverse forwarding, NTS traffic personal and bulletin messages.

Simultaneous operation of HF and VHF packet, KA-Node and PBBS is available while you use other HF modes. Host Master II allows simultaneous 1200 baud packet on VHF and any HF mode: RTTY, ASCII, AMTOR, CW, NAVTEX, PACKET, Pactor, or G-TOR.

Remote access (password protected) to all commands in the TNC from a second station. Full SYSOP access to the PBBS available from a remote station in packet mode.

Selectable CW bandwidth and center frequency.

TheNET, NET/ROM compatible with the optional K-Net.

Preprogrammed 170, 425, and 850 Hz shifts, plus user definable shift (mark and space tones).

Automatic generation of unique 7-character (CCIR 625) selcal of your amateur call sign. Copy the ARRL bulletins using NAVTEX mode to prevent duplicates.

Wide bar graph tuning indicator makes tuning HF signals easy. Reliable, fast-acting AGC eliminates the need for a manual threshold adjustment.

Software

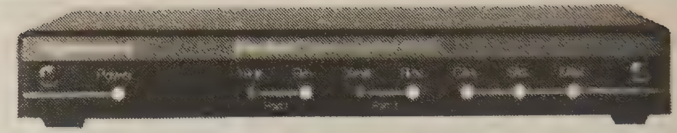
Host Master II+ for Macintosh or IBM

The Host Master terminal program provides a great way to carry on a packet conversation (or several consersations), monitor what else is happening on the channel, and keep everything separate. Plus, with the KAM, work any HF mode (except WEFAX) at the same time.

The Monitor Window displays all incoming packets allowed by the TNC monitor commands. The Packet Receive Window area is actually many windows on top of each other, one for each stream, and a command window. Use PgUp and PgDn keys to go to the next channel (window) or use ESC for the command window.

The XmitEcho Window shows characters as they are transmitted by an HF mode. What you receive from a mode other than packet displays in the Non-Packet Receive Window. The Transmit Window shows what you type on the keyboard and has many windows to coincide with the receive windows. Received and transmit windows keep your conversations separate and will capture each to its own disk file.

Host Master requires Kantronics Host Mode. Simultaneous multi-mode support for the KAM requires firmware version 5.0.



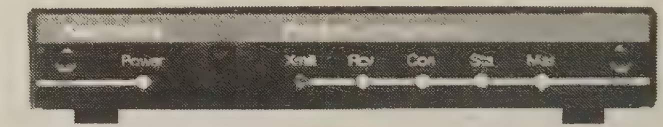
KPC-9612
Dual-Speed, Dual-Port TNC

The FCC-certified KPC-9612 is a true dual-speed dual-port TNC capable of 9600 and 1200 baud QSOs at the same time, even if cabled to only one radio. It will function as both a network node and a TNC at the same time. For its small size and low power requirements, this is an amazingly full-featured packet TNC ideal for both the new and experienced user.

With one radio connected to the 9600 baud port and another to the 1200 baud port, KPC-9612 users can simultaneously transmit and receive at both rates. With both ports connected to one radio, the KPC-9612 automatically detects the speed of the incoming signal and transmits at 9600 or 1200 baud. No hardware changes are required to switch speeds, regardless of configuration.

The KPC-9612 is available with either 32K or 128K RAM and can be expanded to 512K. The full-featured PBBS includes forwarding and reverse forwarding to a BBS, remote sysop access and mail-waiting LED.

A 9600-ready radio is required for 9600 baud operation. GPS capabilities. The NET, NET/ROM compatible with the optional K-Net.



KPC-3
VHF / UHF TNC

The KPC-3 is a small-sized, low-power packet TNC designed for the new user. The simplified commend set allows you to start quickly, and then switch to the full Kantronics command set when you are ready. The KPC-3 now supports GPS. Operating on 6-25 volts DC, requiring less than 40 milliamps, this unit is perfect for portable or other low-power applications. The KPC-3 comes standard with 32Kd RAM, but can be expanded to either 128k or 512k bytes. It supports WEFAX with an optional special program. TheNET, NET/ROM compatible with the optional K-Net.

High Speed Data Radio

D4-10

The D4-10 is a high-speed, wide bandwidth, medium power UHF (70cm) FM transceiver. Coupled with the Kantronics Data Engine and DE 19K2 / 9K6 modem, this radio provides high speed packet operation in an off-the-shelf, no-tweaking system. Rated for 10 watts output, this radio features a double helical front-end for excellent IMD and image rejection–perfect for your high-speed backbone node or home station.

Unusual features of the D4-10 are its two bandwidth modes: 25 kHz for operation up to 9600 baud and 60 kHz for 19.2 kbaud. Very fast T/R switching and direct access to the discriminator output and varicap modulator make this the choice for fast packet. The D4-10's built-in data slicer provides TTL level signals to your TNC on receive. Its built-in pulse shaping allows direct TTL drive as featured in the DE19K2 modem.

The rear panel features the TTL input for 19.2 kbaud operation. It has an analog input for use with standard analog modems like the DE1200, DE2400 or the G3RUH 9600 baud modem. Factory tuned for 435.55 MHz, this radio can operate through the entire 420-450 MHz amateur band. Second channel available at additional cost.

Data Engine High Performance TNC

The Data Engine is a dual-port packet Terminal Node Controller (TNC) with each port capable of speeds greater than 56 kB (depending on the modem installed). As shipped from the factory, Port 1 has a 1200 baud modem (DE1200) installed and Port 2 is open for whatever you desire: DE19K2 / 9K6, PSK satellite modem, G3RUH 9600 baud modem, TexNet modem, another DE1200 modem, or one of your design. Port 1 can also be used for any of these modems. Configure your Data Engine to your needs.

The Data Engine is based on a V40 processor with a 10 MHz clock, and uses an 85C30 SCC for hardware HDLC. The EPROM and RAM sockets allow up to 1/2 Megabyte of firmware and 1/2 Megabyte of RAM. Eight V40 controlled front panel LEDs and two dead front windows make this an ideal platform for the experimenter. The open architecture allows development to meet future packet needs, aided by the optional Firmware Developer's manual and optional Modem Developer's manual.

Standard firmware includes end-user AX.25, Kantronics Host Mode, KISS mode, BBS mode, PBBS and Gateway. Obtain the G8BPQ Packet Switch code and turn your Data Engine into a multi-port network node. Kantronics Data Engine is compatible with today's packet and designed for the development of future applications.

DE 19K2 / 9K6 Internal Modem

The DE 19K2 / 9K6 modem is capable of either 19200 baud or 9600 baud (G3RUH compatible) operation. Configured for 9600 baud from the factory, this modem is fully compatible with the popular G3RUH modem, using independent transmit and receive scramblers for full duplex capability.

Select 19200 baud operation for use with the Kantronics D4-10 radio by moving four jumpers. This mode uses the same 17 bit LFSR scrambler and provides direct TTL output to the D4-10 radio for plug-n-go 19200 baud packet.

DE1200 Internal Modem

The DE1200 modem is a standard 1200 baud packet modem that has three keyboard selectable carrier detection schemes: sine-wave, energy, and external. When sine-wave is selected, carrier is detected by the presence of audio sine waves (packet tones). Selection of energy defines the carrier detect as any received signal and external will rely on the carrier detect of your transceiver. This modem also has jumpers for output level, equalization, watch dog timer and interfacing to hand-held radios.

DE Jumper Board

For ease of use with other manufacturer's modems, the DE jumper board installs on the modem disconnect headers of the Data Engine and provides the signals required by most external modems to the rear panel DB-15 connector. TxD, RxD, RTxC, DCD, TOUT2 and GND are always present. TRxC CTS and DTR are jumper selectable. The on-board PTT circuit and watch dog timer may be disabled by on-board jumpers.

KTU with Weathernode

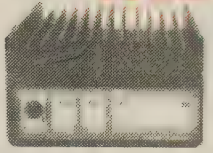
"Just Connect for the Weather" with the Kantronics Telemetry Unit (KTU) with Weathernode EPROM. Weather sensors attach to the KTU, and the KTU attaches to any brand TNC. Then anyone can connect and request weather statistics, via packet.

The KTU with Weathernode comes with a temperature sensor and will accept up to 7 sensor inputs. An optional anemometer is available which will provide wind speed and wind direction information. For those interested in weather watch programs, this is the ideal application for that unused serial port on your local area digipeater. Just add a Weathernode to each site, and you can gather current conditions around the area.

The Weathernode also stores data, so histories of past readings are available, allowing you to plot trends over time on your computer.

VHF / UHF Amps

rf concepts



VHF1-60

Given 1 to 8 watts input, this amp's sensing circuit detects an HT's output power on 2 meters and automatically switches the amp in-line for a full 60 watts output. It provides a 2 meter discriminator to eliminate false keying by out-of-band signals, a high VSWR LED indicator, ALC output power control to protect against antenna mismatches, transmit LED, and thermal shutdown. With a dual-band HT, 70 cm (440 MHz) power is passed on to the antenna without amplification. The VHF1-60 measures 5x9x3 inches and uses 13.8 VDC at less than 14A.

Mini-Amps

NEW!

Mini-Amps are perfect for 2 m and 70 cm HT's. Amps for both bands are available with preamps producing 10 or 15 dB gain. Accepts 1 to 6 watts in. With 2 watts in, the Mini-Amp 144 will output 20 watts; 3 watts in will result in 30 watts. Each amp weighs only 1.3 lbs. Requires 5A at 13.8 Vdc.

GaAs-Fet Receiver Preamps

Most rf concepts amplifiers feature automatic keying, thermal protection, VSWR shutdown, GaAs-Fet preamps and flow soldered assembly. All solid-state. Made in U.S.A.

Call for HRO's Discount Prices

Dual Band 2m / 440MHz

RFC 2/70G (with preamp)
RFC 2/70 (no preamp)
143-149, 5 W in = 30 out
430-450, 5 W in = 20 out
RFC 2/70H
2 meter, 20 W in = 200 out
440 MHz, 20 W in = 125 out

144-148 MHz 2 meters

RFC 2-23, 2 W in = 30 out
RFC 2-315, 40 W in = 170 out
RFC 2-417, 45 W in = 170 out
VHF 1-60, 5 W in = 60 out
*Mini-Amp 144 2W in = 30 out

220-225 MHz

RFC 3-22, 2 W in = 20 out
RFC 3-211, 2 W in = 110 out
RFC 3-112, 10 W in = 120 out
RFC 3-312, 30 W in = 120 out

430-450 MHz

ATV compatible
RFC 4-32, 3 W in = 20 out
RFC 4-110, 10 W in = 100 out
RFC 4-310, 30 W in = 100 out
*Mimi-Amp 440 3W in = 20 out

* "P" Model with preamp

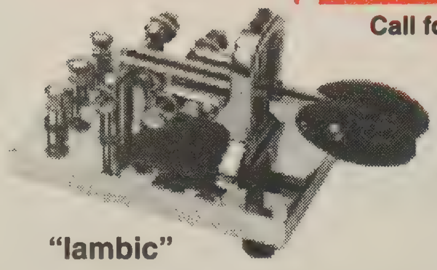
Kantronics Prices

Model	Suggested List
Data Engine (1 Modem)	$389.95
DE 19K2/9K6	$109.95
DE 1200	$79.95
DE Jumper Board	$21.95
D4-10	$369.95
Enhancement Board	$89.95
KAM Plus	$339.95
Host Master II+ (PC)	$69.95
Host Master II+ (MAC)	$69.95
KPC-3 w/ 32K RAM	$119.95

Software is sold on a non-returnable basis. Any software problems will be resolved under the terms of the manufacturer's warranty.

VIBROPLEX®

Call for Quotes



"Iambic"

The Iambic paddle is offered in response to many requests from operators to bring the Vibroplex tradition to modern telegraphy. Although traditional Vibroplex design, it is a modern Iambic paddle.

There are three models: **Iambic Presentation**: 24K gold plated brass plate on a polished chrome base with bright chrome top parts. Silky smooth movements are jeweled as in fine Swiss watches. **Iambic Deluxe**: Same as Presentation but without the 24K gold plated brass plate. **Iambic Standard:** A neat textured-finish gray base with chrome top parts.

"Vibrokeyer"

The Vibroplex Vibrokeyer is designed for "Bug" operators who want to move to electronic keyers without relearning keying. The single lever paddle imitiates the automatic dots and dashes of the electronic keyer with the same motion used to operate the "Bug." It uses the same main frame and chrome parts as the "Original" for the same smooth and easy operating Vibroplex feel. For those who want to combine traditional skill with modern electronics.

Available in two models. **Vibrokeyer Deluxe:** Highly polished chrome base with bright chrome top parts. Silky smooth movements are jeweled as in fine Swiss watches. **Vibrokeyer Standard**: A neat, crisp textured finish gray base with bright chrome parts.

"Brass Racer"

The Vibroplex Brass Racer EK-1 is also a keyer. Concealed in the base is a fully iambic, dot-dash-inserting, and adjustable speed control keyer using the Curtis 8044 chip. Vibroplex quality and pride throughout. A great unit for mobile or DXpedition. The Vibroplex Brass Racer–Iambic is a new design of the iambic paddle; crafted from solid brass and mounted on a base of polished hardwood. The paddle tension can be customized to the operator's precise feel with a single twist of our unique tensioning system. No screws, no springs.

Available in two models: **Brass Racer EK-1**: Same as Brass Racer Iambic but includes a built-in electronic Iambic keyer. **Sugg. List $149.95**
Brass Racer Iambic: Solid lacquered brass mounted on a hardwood base. **Sugg. List $65.95**

"Original"

The Vibroplex "Original" design, with little modification, is made today by the same company using the same tools and dies as always. Modern-day operators can put their fist to the same equipment as the Western Union and railroad operators of old. The distinctive sound of the "Bug" can still be heard—the signature of a true CW expert.

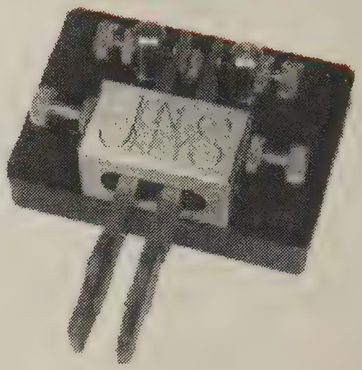
Available in three models. **Original Presentation**: 24K gold-plated brass plate on a highly polished chrome base with bright chrome top parts. Its silky smooth jeweled movements are the same as those used in fine Swiss watches. **Original Deluxe**: Same as the Presentation but without the 24K gold plated brass plate. **Original Standard**: A neat, crisp textured finish gray base with bright chrome top parts.

Attention Internet Users

Look for Ham Radio Outlet on the World-Wide Web.
Ham Radio Outlet's Home Page Info:
HTTP://WWW.HAMRADIO.COM

Also E-Mail: West Coast, Ken, K1ZKM: KDM@HAMRADIO.COM
East Coast, Chuck, KM4NZ: CLW@HAMRADIO.COM

Palomar Engineers



Precision made by Jones of England. Imported by Palomar. Smooth solid iambic action by rotary ball bearings enclosed in machined brass block on steel base. Adjustable spring tension, paddle height and paddle spacing. 3-1/2 pound total weight. Gold plated contacts. Engraved serial number.

PK-200 Brass mechanism with red steel base	$145.95
PK-200B All Brass	$170.95
PK-200G Gold plated (base & mechanism)	$299.95

Nye Viking

Master Key 330-001

The perfect straight key comes with cord and plug. Isolated contact assembly separates keying circuit from hardware. Includes gold-plated silver contacts, adjustable key arm, Navy knob, and heavy die-cast base. **HRO Price $59.95**

Straight Keys

Keys with gold-plated heavy silver contacts, adjustable key action; and heavy die-cast bases. Brass or nickel-plated hardware, standard or Navy knobs.

Bencher, Inc.

BY Series

You will enjoy the smooth, precise action of a Bencher paddle with any iambic keyer. Bencher paddles feature a heavy steel base, gold plated silver contact points, non-skid feet, stainless steel adjustable spring, self-adjusting needle bearings, and large acrylic finger paddles.

HRO Prices for Iambic models:

BY-1	**Black**	**$72.95**
BY-2	**Chrome**	**$89.95**
BY-3	**Gold**	**$219.95**
BY-4	**Gold/Blk**	**$139.95**

RJ Series

For nearly twenty years, Bencher has been the market leader in keyer paddles for flawless code. Now Bencher introduces a hand key that is destined to be the new standard in its class.

The Bencher "RJ" series of hand keys features an advanced American-style design derived from the telegraph keys that won the west, yet with modern features that old timers would have killed for. Like Oilite bearings, a solid navy knob, gold-plated solid silver contacts, full locking adjustments of all tension and spacing parameters, and quality materials throughout—Bencher quality!

These keys are ideal for the new amateur just mastering code as well as the old time brass pounder anxious to "clear the hook." This key offers the Morse code operator an investment that will bring years of pride and satisfaction.

Ask to see the Bencher "RJ" hand key at your favorite HRO location. Send your call, or a snappy "CQ." You will be convinced that there is not a better key available.

HRO Prices:	**RJ-1**	**Black**	**$69.95**
	RJ-2	**Chrome**	**$79.95**

ST Series Single Lever Paddles

Superb Bencher features and construction for the ham who prefers single lever operation. **HRO Prices:**

ST-1	**Black**	**$72.95**
ST-2	**Chrome**	**$89.95**

SWL Antennas

Antenna Supermarket

SWL Sloper

The SWL Sloper covers the popular SWL bands from 11-120 meters. Automatic band switching. SO-239 connector for attaching coaxial cable. **HRO Price: $79.95**

Eavesdropper™

This antenna is a high performance trapped dipole, 42 feet long, for the 11-60 meter SWL bands. Model "T" is fed with supplied 72 ohm balanced feed line. Model "C" will accept coax (not provided) requiring a PL-259 connector. **HRO Price: $79.95**

DYMEK DA100E

The World's Most Respected Short-Wave Active Antenna

Frequency Coverage: 50 kHz to 30 MHz, continuous

Antenna Height: 4 feet 8" (142cm)

Output Impedance: Switch selectable 50,100, 500 ohms

Power Required: 110-120 or 220-240 VAC switch selectable, 50-60 Hz, 4 watts, or 12 VDC 0.4 Amp

Dimensions: Power Supply: 6.5" x 3" x 7.5" (WxHxD) (16.5 x 7.6 x 1 9cm)

Antenna Module: 3.75" x 4.375" x 2" (WxHxD) (9.5 x 11 x 5cm)

Shipping Weight: 9 lbs. (4.1 kg)

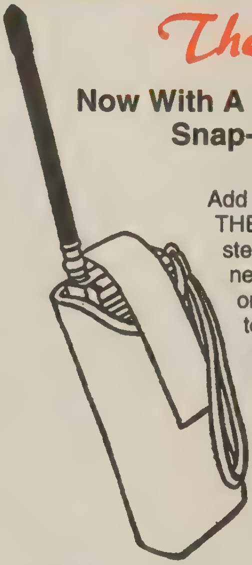
Attenuation: Switch selectable 0,10, 20 dB

HRO Price: $179.95

Radio Protectors

The Pouch

Now With A New Quick-Release Snap-Out Belt Loop



Add protection for your HT with THE POUCH quick-draw holsters. Nylon bonded to black neoprene. Web belt-loop sewn on the back extends over the top and is secured on the front with a velcro tab. All models come with a "bottom-bumper" block of foam, which can be removed by the user in an instant to accommodate bigger batteries.

HRO Price $16.95

The Pouch

Manufacturer	Radio Model	Pouch Model	Comments
Alinco	DJ-162T	Short 1	With the exception of P5 all come with an easily removed "bumper" in the bottom to accomodate a larger battery.
	DJ-180T	Short 1	
	DJ-F1T/G1T	Short 1	
	DJ-560	470	
	DJ-580T	Short 2	
	DJ-G5	Short 1	
Icom	IC-2GXAT	Short 1	
	IC-2iA/4iA	P5	form fit (no bumper)
	IC-2SAT/P2AT	P5	form fit (no bumper)
		SS	with bumper in bottom
	IC-T21/V21	Short 2	
	IC-W2A/2SRA	Short 2	for standard battery
	IC-24AT	Slim-X	for extended life batteries
	IC-W21AT	Short 2	
	IC-W31A	Short 2	
	IC-Z1A	Short 2	
Kenwood	TH-22/42A	SS	for standard battery
		Short 2	for longlife battery
	TH-27/45A	SS	for standard battery
		Short 2	for standard battery
	TH-28/48A	Short 1	
	TH-78A	Short 2	
	TH-79A	SS	Super Small
Standard	C*68A	Short 1	
	C*88A	Short 2	all C188A/288A/488A
	C*28A	Short 2	all C528A/228A/628A
	C558A	Short 2	
	C568A	Short 3	
Yaesu	FT-11R/41R	P5	form fit (no bumper)
	FT-51R	SS	
	FT-415/416	SS	Super Small
	FT-470	470	
	FT-530	Short 2	

For efficient service, HRO ships from the store nearest you.

BOOKSHELF

ARRL

ARRL TECHNICAL BOOKS

AIM	Antenna Impedance Matching
DB	Data Book
DN	W1FB Design Notebook
FSIR	First Steps in Radio
HK	Hints and Kinks
ITRFD	Intro to Radio Freq. Design
LBD	Low Band DXing
MEM	Microwave Experimenter Manual
NAN	Novice Antenna Notebook
OM	Operating Manual
PDOYA	Yagi Design
QRP	QRP Classics
RADIODESIGN	Radio Design IBM Software
REFLECTIONS	SWR Theory
RFI	Radio Frequency Interference
RSGB-AWARDS	Awards Book
RSGB-OP MAN	Amateur Radio Operating Manual
RSGB-RCH	Radio Communication Handbook
RSGB-VHF	VHF / UHF Handbook
SA	Satellite Anthology
SEH	Satellite Experimenters Handbook
SSD	Solid State Design
SSS	Spread Spectrum Source Book
TFRB	The FCC Rule Book
TLT	Transmission Line Transformers
TRAH	ARRL Hardcover Handbook
OARS	Operating an Amateur Radio Station
WSH	Weather Satellite Handbook

ARRL READING

CQGS	CQ Ghost Ship
DVQTH	Death Valley QTH
DXBD	DX Brings Danger
DXCC COMPANION	DX Guidebook
FSTS	From Spark to Space
GCQ	Grand Canyon QSO Book
GIL	Cartoon Book
HFNH	Help for New Hams
MBQ	Murder by QRM
MORSE CODE	The Essential Language
NCJ	Bi-Monthly National Contest Magazine
NS	Night Signals
NN	Novice Notes
QRP NOTE	QRP Notebook
QST	Monthly Magazine of ARRL
RADIOGRAM	Radiogram Message Forms
SOSAM	SOS at Midnight
YVC	Your VHF Companion
FIREWATCH	Firewatch Novel
ET	Easy Target Novel

ARRL PACKET BOOKS

GTPR	Gateway to Packet Radio
PSMSA	Packet Speed, More Speed & Apps

Magazines

73	73 Monthly Magazine
Antenna	Antenna Buyers Guide
CQ	CQ Monthly Magazine
BG	Equipment Buyers Guide
Popular	Popular Communications
QST	QST Monthly Magazine
MT	Monitoring Times
WRN	World Radio News

Scanner Books

HRO stocks many books that contain scanner frequencies for localities around the country. Contact your nearest HRO store for details.

ARRL LICENSE PREPRATION

10-15ARRL	10-15 WPM Code Tape
13-14ARRL	13-14 WPM Code Tape
15-22ARRL	15-22 WPM Code Tape
5-10 ARRL	5-10 WPM Code Tape
GENVIDEO/SOFT	Gen Class Video / IBM Exam
TECHVIDEO/SOFT	Tech Class Video / IBM Exam
NYT II	Study Guide for the No-Code Technician License
LM-TECHNICIAN	Technician Class Manual
LM-GEN-II	General Class Manual
LM-ADVANCED	Advanced Class Manual
LM-EXTRA	Extra Class Manual
TFRB	FCC Rule Book
YITMC	Introduction to Morse Code

ARRL ANTENNA BOOKS

AB	Antenna Book
AC	Antenna Compendium
ACVOL4	Antenna Compendium Vol. 4
AN	W1FB Antenna Notebook
NAN	Novice Antenna Notebook
RSGB-ANT	H.F. Antenna Book
RSGB-WIRE	Wire Antennas
YAD	Yagi Antenna Design

ARRL LISTINGS

DXCC LIST	Official ARRL DXCC List
LB	Log Book
ND	Net Directory
RD	Repeater Directory

ARRL MAPS

GRID ATLAS	Grid Locator Atlas
GRID MAP	Grid Locator Map
USCAM	U.S. Call Area Map
WM	World Map

CRB

ROUSGRF	Registry of Government Freq's

SWL

1487	SWL Antenna Handbook
MT	Monitoring Times Monthly
PASSPORT	Passport to World Radio
WRTVH	World Radio TV Handbook

UNIVERSAL

RTTY CALL	RTTY Call Signs
RTTY TODAY	Complete Guide to Amateur RTTY
SFFG	SW Facsimile Freq Guide
WPSF	World Press Services Frequency Book

ARTSCI

ALPHA&ZULU	Ride the Airwave w/Alpha & Zulu
AMAT HB	Amateur Handbook
FA	Federal Frequency Book
LUM	Lost Users Manual
NASFG	Shortwave Guide
RTM	Guide to Radio Mods
RA	Radio Atlas
USRG	US Repeater Guide

RADIO PUBLICATIONS

ANTENNA HB	Antenna Handbook
BEAM	Beam Antenna Handbook
INTERFERENCE	Interference Handbook
QUAD	All About Cubical Quads
SHORTWAVE	Better Shortwave Reception
VERTICAL	All About Vertical Antennas
VHF	All About VHF Amateur Radio
WIRE	Low-Cost Wire Antennas
COMPLETE DX	Complete DX'er by W9KNI

CQ Books / Publications

1996ALMANAC	CQ 1996 Ham Radio Almanac
ARC1996	Amateur Radio Calendar 1996
BAUBAU	Building & Using Baluns and Ununs
BG-96	1996 Equipment Buyers Guide
LMOA	Lew McCoy on Antennas
QUADANTENNAS	Quad Antennas
RCC1996	Radio Classics Calendar 1996

CALLBOOK

USCB	North American Callbook
DXCB	International Callbook
RAC-CD	Callbook CD-ROM National and International

QRZ! Ham Radio CD-ROM

QRZ! Ham Radio's CR-ROM for DOS and Windows is the perfect information source for Hams and SW listeners. For details see page 54.

Study Aids

AMECO

100-T	Junior Code Tape
101-T	Senior Code Tape
102-01	Amateur Radio Theory Course
103-T	Advanced Code Tape
104-T	Extra Class Code Tape
105-QT	General Class QSO Course Tape
105-QT	Extra Class QSO Course Tape
12-01	General Class Test Manual
17-01	Extra Class Test Manual
26-01	Advanced FCC Test Manual
27-01	Novice FCC Test Manual
28-01	Technician Class Test Manual
EN-1	Novice Class Exam
78-01	Codeless Technician Manual

GORDON WEST / W5YI

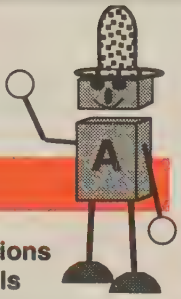
ADV	Advanced Manual by Gordon West
ARLB	Amateur Radio Log Book
GROL	Commercial Gen. Radiotelephone LM
GWEM	Extra Class Study Manual
GWET	Extra Class Code Tapes (2)
GWGM	General Class Study Manual
GWGT	General Class Code Tapes (2)
GWNT	Novice Code Tapes (2)
GWNW	Novice Class Theory Tapes (2)
GWTW	Tech Theory Tapes (2)
MCHB	Mob. Comm. Handbook (G West)
W5YI-HO	Study Course, all Licenses (PC)
GW0064	Ground Foil 25'
GW0065	Ground Foil 50'
NNCPLUS	New no-code plus study guide

KB6MT

CODE	Novice to 21 WPM Code Training Tapes
IT	Instant Theory Tape
IT-NCTECH	Instant Theory No Code Tech
IT-NOVICE	Instant Theory Novice
IT-TECH	Instant Theory Tech
IT-GEN	Instant Theory General
IT-ADV	Instant Theory Advanced
IT-EXTRA	Instant Theory Extra
WORDS	Code word course

Software is sold on a non-returnable basis. Any software problems will be resolved under the terms of the manufacturer's warranty.

artsci



Technical

Radio / Tech Modifications & Alignment Controls

Easy to follow instructions (with detailed drawings) to enhance almost all brands of amateur HT's and mobile radios. Includes extended frequency plans. **Volume A** (Icom, Kenwood, Scanners), **Volume B** (Alinco, Standard, Yaesu, Others) **HRO Price $19.95 each**

Lost Users Manuals

Lost the manual to your radio? Bought a used radio with no manual? Lost Users Manual contains operating instructions on most popular VHF & UHF radios: Alinco, Icom, Kenwood, Yaesu, Uniden. **HRO Price $19.95**

Reference

U.S. Repeater Map Book

The PERFECT traveling companion for the radio enthusiast. Road maps show major highways and cities in every state. Amateur radio repeater frequencies are included. This is a must for truckers and travelers. Maps are enhanced to provide greater highway detail. **HRO Price $9.95**

Amateur Hambook

This book is like a mini Amateur library! Contains charts, tables, construction plans for all areas of amateur radio. Never go looking through all your other books again for that piece of information. It's here! **HRO Price $14.95**

License Preparation

Riding the Airwaves with Alpha & Zulu

Let Alpha & Zulu and other characters teach you and your kids amateur radio. Have great fun studying for the Novice and No-Code Technician tests. 288 pages of cartoons, mini tests and games. **HRO Price $14.95**

Scanner / Frequency

Federal Assignments

Ever wonder what the federal government agencies are up to? Listen in! This book, third edition, has the secret frequencies used by our government. By far this is the most comprehensive book we know of. **HRO Price $24.95**

Police & Fire Communications Handbook

With the ever changing police frequencies in Southern California, it is about time an accurate and up to date scanner book was available. More than 380 pages of frequencies, inputs & tones. **HRO Price $19.95**

Shortwave

North American Shortwave Frequency Guide

A comprehensive by frequency list of all HF broadcasts by every country (worldwide) and service that can be heard in North America. **HRO Price $19.95**

uniden®

Handheld Scanners

NEW!

BC-3000XLT

$619.95

Suggested List Price
Call for HRO DISCOUNT PRICE

The 3000XLT handheld provides 400 channels with continuous band coverage. It covers 25 to 550 MHz and from 760 to 1300 MHz (except cellular bands). It features Turbo Scan and Turbo search; 10 priority channels, all mode (AM, NFM and WFM); selectable attenuator, data skip, automatic store and sorting; flexible antenna and rechargeable battery.

BC-2500XLT

$699.95

Suggested List Price
Call for HRO
DISCOUNT PRICE

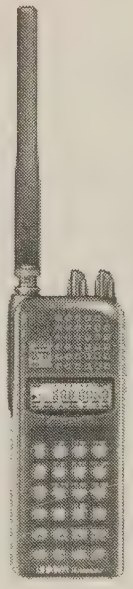
Continuous band scanner up to 1.2 GHz. Fully programmable with 400 channels, 20 banks, 20 priority channels, auto store, VFO knob, WX search, Turbo scan, step select, rechargeable NiCad battery with AC adapter.

BC-220XLT

$349.95

Suggested List Price
Call for HRO
DISCOUNT PRICE

The 220XLT handheld scanner features a compact design. It has 200 channels in 12 bands with aircraft (800 MHz is blocked). Other features include twin turbo scan and search, programmed SVC search, unique skip data, and manual channel access. The scanner has a full frequency LCD display, one touch, and includes a rechargeable NiCd battery.



Mobile Scanner

BC-760XLT

$499.95

Suggested List Price
Call for HRO DISCOUNT PRICE

This mobile scanner includes 800 MHz coverage (with cellular locked out). It features:

- 100 programmable channels organized in 5 scanning bands of 20 channels each.
- Automatic scanning of preprogrammed aircraft, police, marine and emergency services.
- Weather search, priority, squelch, lockout & delay.

Base Units

NEW!

BC-9000XLT

$599.95

Suggested List Price
Call for HRO DISCOUNT PRICE

The 9000XLT base station provides 500 channels with continuous band coverage. It covers 25 to 550 MHz and from 760 to 1300 MHz (except cellular bands). It features Turbo Scan and Turbo search; 10 priority channels, all mode (AM, NFM and WFM); selectable attenuator, data skip, automatic store and sorting; automatic control tape ON/OFF, and tape output feature.

BC-8500XLT

$599.95

Suggested List Price
Call for HRO DISCOUNT PRICE

Continuous band scanner through 1.3 GHz. Fully programmable with 500 channels, 20 banks, 20 priority channels, dot matrix alpha numeric illuminated display, auto store, VFO know, WX search, Turbo scan, aux tape output, weather alert, selectable delay, reception counter, step select.

BC-890XLT

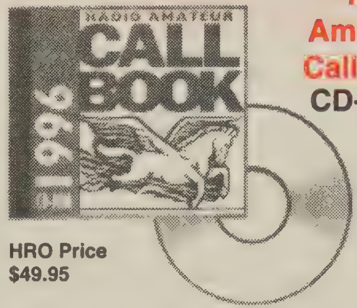
$489.95

Suggested List Price
Call for HRO DISCOUNT PRICE

Continuous band scanner through 956 MHz. Fully programmable with 200 channels, 10 banks, 10 priority channels, auto store, VFO knob, WX search, Turbo scan, aux tape output, WX Alert, illuminated LCD display, reception counter, step select.

CD-ROMs

SOFTWARE STUDY AIDS



Radio Amateur Callbook CD-ROM 1996

HRO Price $49.95

This is the most complete and extensive radio amateur directory on the market. Incorporating both the North American and International editions of the world's most respected callbooks, it provides more than 1.3 million listings in more then 250 countries, islands, and dependencies. By including several countries not found in any other directory, Radio Amateur Callbook CD-ROM offers unmatched coverage of the world.

Specific features:
- Windows / DOS platform.
- Data display by callsign, last name, city, license class, issue, and expiration dates.
- Search U.S. stations by callsign, last name, and city.
- Search international by callsign, last name, city, or text search by name, street, city, province, or region after selecting country.
- Unique sound output of Morse code alphabet can be used by the blind or anyone who wants to learn Morse code.
- Windows clipboard tool for single label or applications. Import data into logging spread sheet, word processor, or label printing program. Logging program interface available.
- Listings of clubs, "Then and Now" call letter changes, military, and silent keys.
- Text files listing prefixes by countries (40 zones), DXCC countries list, census of amateur prefixes, QSL bureaus, reciprocal operating agreements, 10-meter beacons, 6-meter beacons, international "Q" signals, and much more.

BUCKMASTER

HamCall™ CD-ROM

Look up US & International callsigns. More than **1,186,000** listings and **113** countries. Lists in new FCC data format: U.S. clubs, military stations, reciprocal calls, 687,000 U.S. amateurs, and 392,000 International calls. ICALL DOS & Windows programs look up: name, address, expiration date, birth date, license class, county, lat / long, area code, time zone, grid square, previous call and class, latest FCC transaction.

Retrieve by any data element including county on PC; call sign on MAC. Hundreds of new shareware programs are on the disc.
- No hard disk required.
- Print labels.
- Export to hard disk or floppy.
- TSR runs from text window; displays county.
- Standing orders accepted.
- Latest public domain PC Software.

HRO Price $50.00

QRZ!

Ham Radio CD-ROM for DOS and Windows

Ham radio and short wave enthusiasts will be pleased that QRZ now supports Windows 3.1.

Of particular interest is the new QRZWIN call sign search-and-retrieval software that allows easy access to more than 600,000 names and addresses of US and Canadian hams. The full name, address and FCC license information is included with each record.

QRZWIN provides editing and printing functions which make custom mailing lists easy. Import the information to your favorite word processor for advanced formatting and list processing. It features an open database with documentation so users can create their own custom applications.

Several ham radio logbook utilities support the QRZ database. DOS routines are included for non-Windows users.

Also included on the CD-ROM are the complete text to the FCC approved license examinations, questions and answers, current rules and regulations, and 100's of shareware utilities. **HRO Price $19.95**

License Studies

MacHam Radio

MacHam Radio™ Study Guides

Study for the Amateur Licenses with the aid of your **Apple® Mac®** Computer. Material is from the latest FCC question pools. Includes diagrams on screen and is EVERYTHING you need to pass your exams! Test on screen or printed!

Morse Code Training: Vary speed from 1 to 30 WPM. Set FARNSWORTH spacing and Tone. Unlimited RANDOM WORDS and QSO's. Has many more great features!

MAC Software

You will be VERY impressed with these programs.

NO-CODE TECHNICIAN $39.95

GENERAL, ADVANCED and EXTRA
Each Version Just $34.95

MacHam Morse™ Price $39.95

Education Software

W5YI

No-Code Ham Radio Software

Computer aided instruction allows you to study for the new No-Code Technician Class License. Includes both 3.5" and 5.25" diskettes. Contains a 236 page new No-Code handbook by Gorden West. **HRO Price $29.95**

General Class Upgrade Software

New upgraded version. Trains No-Code Technicians to upgrade to the General Class License. Program covers theory and code. Learn Morse code at your PC, build speed. Includes both 3.5" and 5.25" diskettes. Requires 256K and DOS 2.11 or later. **HRO Price $29.95**

Ham Operator Education Software

Use you IBM compatible or Tandy PC to study and review No-Code through Extra Class License material. The package includes nine diskettes covering all theory and Morse code for all Ham licenses. Includes both 3.5" and 5.25" diskettes. Requires 256K and DOS 2.11 or later. **HRO Price $39.95**

General Radiotelephone Operator

Pass your GROL fast with computer-aided instruction. Complete with 332 page fully illustrated manual. Take sample tests right at your PC – or print them out. Includes both 3.5" and 5.25" diskettes. For IBM PCs or compatibles. **HRO Price $49.95**

Morse Software

GGTE Morse Tutor

The GGTE Morse Tutor comes in two models, standard and advanced. The software is for the IBM PC / XT / AT and compatibles.

The eleven lessons use a flash card technique to teach you Morse code. Each session can be set up to teach only the specific lesson, a random character drill or a random word drill using only those characters learned through the current lesson. The last lesson is a random QSO generator based on a large information pool. This lesson is similar to code exams.

The program does standard CW spacing or the Farnsworth method. It is menu driven. Specify 3.5" or 5.25" disks.

The advanced version includes all the features of the standard plus the ability to enter your own text from the keyboard or imported ASCII files. Also shown is the character tally. **HRO Price $29.95**

Kantronics

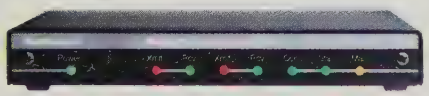
THE ULTIMATE DATA CONNECTION

KAM Plus™
HF and VHF Dual Port
Multi-Mode Controller

Kantronics KAM Plus

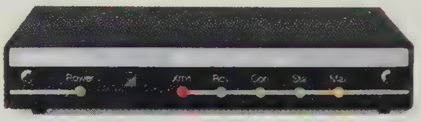
The definitive multi-mode TNC, the KAM Plus features an HF port and a VHF port, so it easily operates any HF mode and VHF packet at the same time. Operates G-TOR™, PACTOR, AMTOR, PACKET, RTTY, CW, ASCII, and NAVTEX/AMTEX and offers G-TOR monitoring without additional monitoring software. The KAM Plus supports GPS operations and is APRS compatible. Equipped with 128K RAM, configure your KAM Plus mailbox space to more than 100K. The battery-backed RAM saves all parameters and mailbox messages. The KAM Plus uses standard shifts and is programmable for any shift. Operates RS-232 or TTL. Can be accessed and controlled remotely, features on-line help messages for each command, and comes with software to help you get started. Very low power required: 9-15 Vdc @ <260 mA. 1-3/4"h x 6"w x 9"d. 2-1/2 lb.

KPC-9612™
9600 and 1200 Baud
Dual Port Packet Communicator



The leader among dual-port, dual-speed TNCs, the KPC-9612 can operate at both 9600 and 1200 baud at the same time. The 9600 baud port can even be configured for 19,200 baud. The KPC-9612 supports GPS operations and is APRS compatible. And with Kantronics' new K-Net networking option, the KPC-9612 can operate as both a networking node and a TNC at the same time. Choose a 32K or 128K RAM version, and configure your full-featured PBBS to more than 100K of mailbox space. Battery-backed RAM saves all parameters and mailbox messages. Can run on a 9-volt battery, can be accessed and controlled remotely, features on-line help messages for each command, and comes with software to help you get started. Very low power required: 6-25 Vdc @ <45 mA. 3/4"h x 6-1/4"w x 6-1/4"d. 13 oz.

KPC-3™
1200 Baud
Packet Communicator



The hottest TNC on the market, the KPC-3 is the perfect 1200 baud packet TNC. Choose a 32K or 128K RAM version, and configure your full-featured PBBS to more than 100K of mailbox space. Battery-backed RAM saves all parameters and mailbox messages. Kantronics provides the most flexible GPS operations available in a TNC, and the KPC-3 is APRS compatible. With Kantronics' new K-Net networking option, the KPC-3 can operate as a networking node and a TNC at the same time. Can run on a 9-volt battery, can be accessed and controlled remotely, features on-line help messages for each command, and comes with software to help you get started. Very low power required: 6-25 Vdc @ <40 mA. 3/4"h x 5-1/4"w x 5-1/4"d. 11 oz.

ENJOY THE BEST

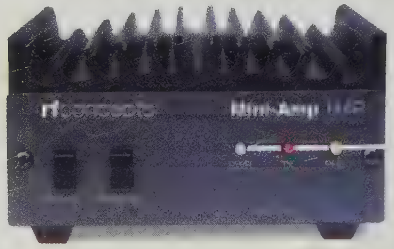
rfconcepts
Mini-Amp 144

Mini-Amp 144

2m and 70cm HT amps

For the 2 meter and 70 cm bands, rfconcepts' new Mini-Amp™ 144 and Mini-Amp 440 are perfect for hand-held radios. Both amplifiers are available with preamps producing 10 to 15 dB gain, and both will accept 1 to 6 watts in. They are very small and lightweight and can easily be equipped with mounting brackets, so they are ideal for portable use.

Model #	144	144P	440	440P
Power In:	2W/3W		3W	
Power Out:	20W/30W		20W	
Max. Input:	6W			
Gain (typical):	–	15dB	–	10dB
Current:	5A			
Size (inches):	4 x 2 x 6			
Size (cm):	10.2 x 5.1 x 15.2			



Mini-Amp 144P with preamp

rfconcepts™

a division of Kantronics Co., Inc.

VHF/UHF All-Mode Transceiver FT-736R

"Why bother with imitation satellite rigs, when the FT-736R has more bands, and AC and DC, too?"

"Right! And Yaesu also makes a choice of two companion rotators!"

"Yaesu did it again!"

Satellite leader for eight years, far and away.

YAESU VHF/UHF ALL MODE TRANSCEIVER FT-736R
433736.0
CLEAR
SPEAK
CALL 1
CALL 2
BAND
▼ DOWN
▲ UP

Demanding VHF and UHF amateur operators know their "stuff." That's why the Yaesu FT-736R, and companion G-500A or G-5400B rotator, have been their station of choice for over eight years. To sustain that leadership position, Yaesu engineers specifically designed the FT-736R to meet the mandates of this unique operating interest.

Not only does the FT-736R come with 144 and 430 MHz bands, easy-to-install modules instantly add two more, for a total of four. To customize your transceiver, choose from bands available in 50, 222, or 1240 MHz. Four bands – available on only one radio – the FT-736R.

No tuning problems with the FT-736R, either. Unlike other "me-too" transceivers, Yaesu's pioneering VFO Tracking System (VTS) automatically sets the uplink frequency on inverted or non-inverted transponders, and the built-in Discriminator Center Meter displays the frequency in use and allows precise tuning on LEO satellite FM downlinks. For flexible operating power needs, the FT-736R uses either 13.8 VDC, or its own built-in AC power supply. To simplify station setup, interface jacks for PTT, external speakers, TNC Connection, and linear amplifier make installation a snap!

Low receiver noise figures, and a built-in IF CW filter make the FT-736R ideal for weak signal work: EME, Meteor Scatter, FAI, Sporadic-E, or Tropo. Add the G-500A or G-5400B Rotator to the FT-736R, and your complete and exclusive Yaesu package for satellite operation is up and running.

There's no rig quite like the FT-736R. For sheer numbers of specialized features, unquestionable benefits, and satellite rotators made by the only radio manufacturer in the world, let Yaesu take you far and away.

Specifications

- Frequency Coverage
  2m: 144-148 MHz
  70cm: 430-450 MHz
- 100 Memory Channels
- Full Cross-band Duplex w/Inverted Tracking for AO-13
- Easy Interface to TNC via Data In/Out Jack
- RF Output Power:
  25 W on 144, 222 & 430 MHz
  10 W on 50 & 1240 MHz
- 117/220 VAC, 13.8 VDC
- Emission Types
  LSB/USB (J3E Voice),
  CW (A1A)
  FM (F2D, FSK, F3E Voice)
  TV (A3F optional, for 1.2 GHz*)
  *Requires optional Unit

YAESU

Choice of the World's top DX'ers

G-500A

Elevation rotator for space communication antennas.

Max. Antenna Wind Load: 12 sq. ft.

Mast Size: 1½"-2½"

Boom Dia.: 1¼"-1⅝"

G-5400B

Azimuth-Elevation combination for space communication antennas. DIN connection for computer operation.
Max. Antenna Wind Load: 11 sq. ft.
Mast Size: 1½"-2½"
Boom Dia.: 1¼"-1⅝"
Rotator Size: 12⅞"H x 7¼" Dia.
(Mounted together)
(GS-232 Computer Interface Available)

© 1995 Yaesu USA, 17210 Edwards Road, Cerritos, CA 90703, (310) 404-2700.
Specifications subject to change without notice. Specifications guaranteed only within amateur bands. Check with your local Yaesu dealer for specific details.

2m/70cm Mobiles **FT-2500M**/FT-7400H

Advanced Track Tuning, Mil Spec, true FM. All in one radio!

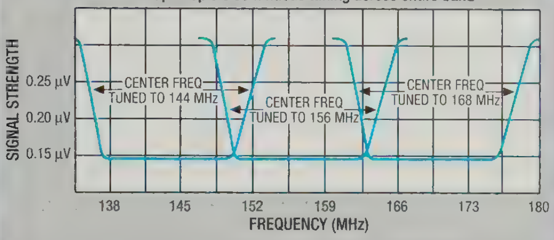
Outside, you can easily see why the FT-2500M stands up to the shock and vibration like no other. We engineered the first mobile radio to meet the rigid standards set by the U.S. Military back in the '80s, and that same critical design is in the FT-2500M. From the simplified front panel, rubber coated knobs, durable pebbled finish coating, and huge Omni-Glow™ display to the one-piece die-cast chassis, the FT-2500M can take whatever you throw at it!

Inside, the electrical circuitry meets standards so uncompromising the FT-2500M can respond like no other radio. Built-in 3-Stage Advance Track Tuning (ATT), automatically retunes from 140 to 174 MHz permitting consistent receiver sensitivity across the entire band.

But there's more. Like alpha-numeric display capability! Lets you program a frequency or a 4-character name on any of the 31 memories. With three selectable power output levels and up to 50 watt power output, the FT-2500M extra large heat sink means forced air cooling is not necessary. And, as a bonus, Yaesu's exclusive backlit DTMF mic comes with every FT-2500M.

Experts say the FT-2500M is the only commercial-grade amateur radio available. So, for tough manufacturing standards, inside and out, with true FM clarity, and outstanding performance, the FT-2500M is your mobile.

Graph depicts continuous tuning across entire band



3-Stage Advance Track Tuning (ATT) – The exclusive 3-Stage Advance Track tuning front end automatically adjusts band width sensitivity across the entire receiver range, while maintaining selectivity specifications. ATT significantly reduces interference from inter-modulation and front end overload.

Specifications

- **Frequency Coverage:**
  FT-2500M
  RX: 140-174 MHz
  TX: 144-148 MHz
  FT-7400H
  RX/TX: 430-450 MHz
- Rugged Military Spec Design
- Advanced Track Tuning (ATT)
- Selectable Alpha-Numeric Display
- Omni-Glow™ Display, largest available
- Power Output:
  FT-2500M 50/20/5 Watts
  FT-7400H 35/15/5 Watts
- Flip Up Front Control Panel hides seldom used buttons
- Backlit DTMF Mic
- 31 Memory Channels
- CTCSS Encode Built-in
- Automatic Power Off (APO)*
- Time-Out Timer (TOT)*
- Manual* or Automatic Backlighting Adjustment
- **Accessories:**

FP-800	20 Amp HD Power Supply w/ Front Mounted Speaker
FRC-6	DTMF Paging Unit
FTS-17A	CTCSS Decode Unit
SP-4	External Mobile Speaker w/ Audio Filters

*FT-2500M

YAESU

Performance without compromise.™

"Just look inside. Military spec really means something to Yaesu!"

"A QST review says 'the FT-2500M exhibited superior 10 MHz offset IMD dynamic range of 103 db!'"

"This Advanced Track Tuning practically eliminates intermod!"

"Yaesu did it again."

US MILITARY
APPROVED
MIL-SPEC 810
POWER
LOW 28
BUSY
145.000
VOL
YAESU FM TRANSCEIVER FT-2500M

FT-2200/7200

Just 5.5"W x 1.6"H x 6.5"D, the FT-2200/7200 radios are designed to fit into today's more compact cars with ease.

SPECIFICATIONS • Frequency Coverage: FT-2200 RX: 110-180 MHz, TX: 144-148 MHz. FT-7200 RX/TX: 430-450 MHz. • Wide Receiver Coverage: 110-180 MHz • AM "Aircraft" Receive: 110-139 MHz • Built-in DTMF Paging/Coded Squelch • Selectable Channel Only Display • 10 Memory DTMF Auto Dialer • Backlit DTMF Mic • Power Output 50/20/5 Watts (FT-7200 35/15/5 Watts) • 50 Memory Channels • Remote Operation w/ Optional MW-2 • CTCSS Encode Built-in • Optional Digital Voice Storage System. Accessories: See your authorized Yaesu dealer.

NEW HF

Compact HF Transceiver **FT-900AT**

Introducing an HF that's going places.

"With the small snap-off remote front panel design, it's an HF mobile."

"It's a great base, too. Direct keypad entry, built-in antenna tuner, CW keyer with adjustable speed, 100 Watts, Omni-Glow display... Wow!"

"Yaesu did it again!"

Uncompromising HF quality that will change your lifestyle. It's the first transceiver with true HF technology to go mobile in any vehicle or stay at home as a compact base station.

With its revolutionary, small, snap-off remote panel, the controls of the FT-900AT can install almost anyplace in your car, truck or camper. Since the 100 Watt RF deck can be installed under a seat or in your car trunk, it's away from critical automotive electronic wizardry. And, for ultimate convenience, the built-in antenna tuner simplifies in-car operation.

As a base station, the compact full function FT-900AT includes direct keypad entry for pinpoint accuracy during quick band/frequency changes. Other features you'll like include CW keyer with front panel speed adjustment, speech processor, twin stacking VFOs, and IF Shift and Notch. No competitor offers this! Bonuses, such as signal strength, power output, SWR and ALC digital meters, add value to the FT-900AT, and the proven duct-flow cooling system provides excellent long-term transmit power output reliability and frequency stability. For ease of use, Yaesu's exclusive Omni-Glow display enhances viewing in any light condition. And, since the high speed antenna tuner is built-in, it means less clutter in your shack.

For sheer high-performance, anywhere, the incomparable FT-900AT ranks with the FT-1000 to further establish Yaesu as the choice of the world's top DX'ers.

Trust Yaesu to know what you want. True HF you can take with you or leave at home! Available now at your Yaesu dealer.

The FT-900AT controls mount almost anywhere in your car, truck or camper. 100 Watt RF deck can mount in trunk, or under seat.

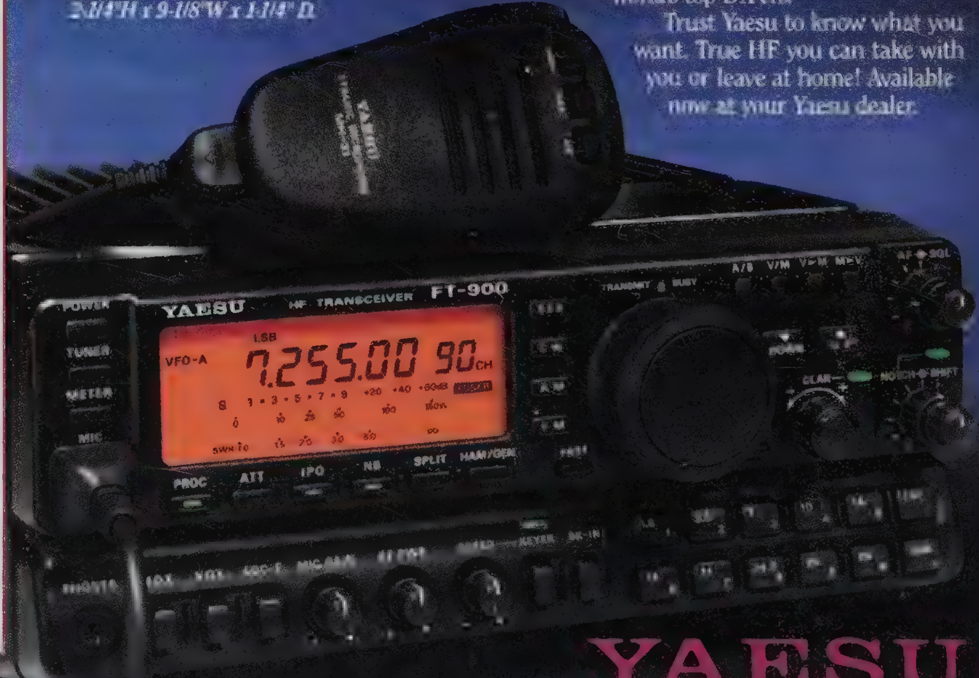
Remote front panel control head measures only 2-1/4"H x 9-1/8"W x 1-1/4" D.

Specifications

- Remote Front Panel Design
- Built-In Auto Antenna Tuner
- Direct Keypad Entry when used as a Base Station
- Large, Bright Omni-Glow™ LCD Display
- 100W on SSB, CW, FM modes; 25W on AM
- IF Shift and 30db Notch Filter
- Digital S/RF, SWR & ALC Meters
- Programmable CTCSS Encode w/Repeater Offset
- Direct Digital Synthesis (DDS)
- 100 Memory Channels
- Frequency Range
  RX: 100 kHz-30 MHz
  TX: 160-10 meters
- CW Full Break-in Keying w/ Adjustable Speed
- Fast/Slow AGC Circuit
- Intercept Point Optimization
- Duct Flow Cooling System
- Twin Band Stacking VFOs
- Built-in Noise Blanker
- Built-in Adjustable Speech Processor

ACCESSORIES:

YSK-900 Remote Mount Kit
MMB-62 Controller Bracket
MMB-20 Mobile Mtg. Bracket
SP-7 Mobile External Spkr.
SP-6 Base Station External Spkr.
DVS-2 Digital Voice Recorder
FP-800 20A HD Power Supply
YH-77ST Headphone



YAESU

Choice of the World's top DX'ers

© 1994 Yaesu USA, 17210 Edwards Road, Cerritos, CA 90703 (310) 404-2700

Specifications subject to change without notice. Specifications guaranteed only within amateur bands. Some accessories and/or options are standard in certain areas.

COMPUTER PROGRAMMABLE

Dual Band Mobile FT-8500

"Each of the mics function the same, and the radio is PC programmable with ADMS-2!"

"Look, the digital voltage display monitors my car battery voltage, too!"

"I like the Spectra-Analyzer. It keeps track of my favorite repeaters, and checks UHF and VHF channel activity."

"Yaesu did it again!"

The only alphanumeric dual band mobile now comes with a choice of two unique microphones.

FS-10 Smart Controller™ Microphone
Use unique Joystick-type lever to command functions.

NEW

MH-39 DTMF Microphone
All functions conveniently at your fingertips including two user-programmable buttons.

Rotary Dial Selector Knob
Select memories and other settings according to the current mode functions.

S-10
145.000
2-01
TOT
439.700
DC VOLTAGE
13.7 V

Features

- **Frequency Coverage:**
  2m RX: 110-174 MHz
  TX: 144-148 MHz
  70 cm RX: 410-500 MHz
  TX: 430-450 MHz
- Spectra-Analyzer™ w/adjustable signal width, spacing & span markers
- 6-Character Alphanumeric Display
- 110 Memories (in 5 memory banks)
- Omni-Glow™ Display
- Digital voltage display
- Selectable 1200/9600 baud
- 3-Level Auto-Mute w/Mute Timer
- V+V, U+U, V+U Dual Receive
- 3 Power Output Levels
  2 m 50/10/5 Watt
  70 cm 35/10/5 Watt
- Built-in Auto Power Off (APO) and Time-out Timer (TOT)
- MIL-STD 810
- 9 Memory DTMF Autodialer
- PC Programmable w/ADMS-2
- 3 Scanning Modes w/ Clear Scan
- Adjustable LCD Contrast/ Brightness Control
- **Accessories:**
  Consult your local Yaesu dealer.

Rear-panel data jack for packet with 6-pin connections for Data Input, PTT, 9600 bps and 1200 bps Receive Data, Squelch Status, Ground.

ACTUAL SIZE
5.6 x 1.6 x 6.4 in. (140 x 40 x 160 mm)

For the first time ever, the only dual band mobile with alphanumeric capability is available with two microphones. Customize your mobile radio use by choosing the high-tech FS-10 Smart Controller™ Microphone with its unique Joystick-type lever, or the new MH-39 DTMF Microphone which includes convenient handheld programmability. The FT-8500 has a built-in function menu, so you can program the radio from the microphone, or use the exclusive, optional new ADMS-2 Windows™ Software Kit. An unbeatable combination—user-friendly Yaesu engineering, and state-of-the-art performance.

The FT-8500 offers more than a choice of microphones. Watch the exclusive Spectra-Analyzer™ exhibit station activity above and below your current operating channel. See the digital voltage readout monitor your car battery voltage big and bold in the Omni-Glow™ display. View frequencies and custom alphanumeric messages at the same time in V+V, U+U or V+U. What's more, the FT-8500 features handy cloning, selectable 1200/9600 baud, and a rear-panel data jack for packet!

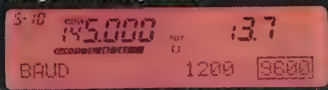
The company who defined dual band for amateur radio has now made it better. The FT-8500, with two microphones to choose from, and a host of terrific features for exciting operation, and extraordinary performance. We give you a choice, the FT-8500/FS-10 or the FT-8500/MH-39. Make it today!

S-10
145.000
TOT
144.980
SIMPLX

VHF&VHF, UHF&UHF, VHF&UHF Select three dual band configurations. Shown with custom 6-character alphanumeric code.

S PR
145.000
TOT
439.700

SPECTRA-ANALYZER™ Display station activity above and below current operating channel. Exhibit programmed channel signal strength in Memory Recall.



DIGITAL VOLTAGE DISPLAY Monitor automobile battery voltage. Choose 1200 or 9600 bps from Menu Selectable Packet Baud Rate.

YAESU

Performance without compromise.℠

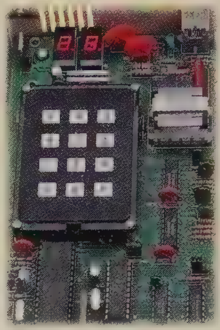
© 1995 Yaesu USA, 17210 Edwards Road
Cerritos, CA 90703 (310) 404-2700

Specifications subject to change without notice. Specifications guaranteed only within amateur bands. Some accessories and/or options are standard in certain areas. Check with your local Yaesu dealer for specific details.

CSI® CONNECT SYSTEMS INC.

TURN YOUR RADIO INTO A PHONE!

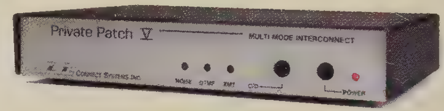
Beat the high cost of cellular by using a **CSI** interconnect to initiate and receive telephone calls using your home telephone line extended to your mobile or handheld via your base radio. We have various models for simplex and duplex transceivers. Some models even have a built-in repeater controller suitable for inexpensive club or private repeaters with autopatch.



Only CSI Interconnects come with a built in programming keypad and display

COMPARE THESE FEATURES

• 90 memory speed dialer • Last Number Redial • Built-in Programming Keyboard and Digital Readout • Single or multi digit access codes • Secret toll override access codes • Toll Restrict numbers and sequences • Telephone to mobile DTMF selective calling† • Remote Base Mode makes the base station available from any touchphone† • Regenerated tone or pulse dialout • Ringout on 1-9 ring • Line in use detect • Call waiting • CW ID • Hookflash • Activity & Timeout timers... And much More! † Not available in CS-700



PRIVATE PATCH V

Our top of the line interconnect! Private Patch V is a user programmable multi-mode interconnect that offers four user selectable operating modes: 1. Enhanced Sampling 2. VOX Simplex 3. Semi-Duplex 4. Repeater Controller. FCC and DOC approved. No other patch offers as many modes and features!
12-15 VDC 11.5" W x 7.5" D x 2.25" H 3.8 lbs. ....

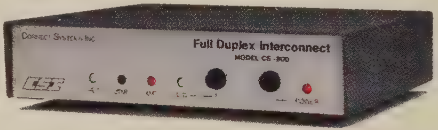
9801 Electronic Voice Delay Option for Private Patch V

A plug in board that provides a full 1/2 second delayed telephone audio to eliminate word clipping when using Private Patch V with very slow switching transceivers in VOX simplex. ....

Connect Systems Inc.
Control Station Interconnect
MODEL CS-900
CSI
DTMF
XMT
POWER

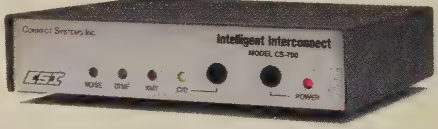
CS-900 CONTROL STATION INTERCONNECT

The CS-900 is a VOX simplex interconnect for use with any simplex transceiver. Can also be used through remotely located repeaters (from your base) for additional range. The standard 1/2 second Electronic Voice Delay totally eliminates syllable or word clipping and results in unsurpassed simplex performance. Connects to the Mic and Speaker jacks of your simplex transceiver. FCC and DOC approved. (Transceiver switching speed does not affect performance).
12-15 VDC 7.9" W x 7.5" D x 2" H 2.5 lbs. ....



CS-800 FULL OR HALF DUPLEX INTERCONNECT

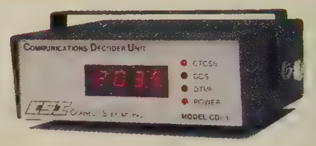
The CS-800 operates Full Or Half duplex and also has a built-in Repeater Controller. Simply connects to the Mic and Speaker jacks of your dual band transceiver. FCC and DOC approved. Best deal going in a full duplex interconnect!
12-15 VDC 7.9" W x 7.5" D x 2" H 2.5 lbs. ....



CS-700 INTELLIGENT INTERCONNECT

The CS-700 is for simplex operation and offers selectable VOX Enhanced or VOX Controlled Sampling which allows the mobile to maintain positive control at all times. Complete with 9 memory speed dialer. Requires an internal connection to the transceiver detector. Best results occur with fast switching transceivers.
12-15 VDC 7.9" W x 7.5" D x 2" H 2.5 lbs. ....

COMMUNICATIONS DECODERS



CD-1 COMMUNICATIONS DECODER UNIT

Decodes and displays all 50 CTCSS tones, 104 DCS codes and all 16 DTMF digits when connected to any scanner, receiver or service monitor. Useful for service work or determining the correct codes to operate open repeaters and autopatches. DTMF sequences are slowly displayed a second time just in case the real time digits were too fast to comprehend.
12-15 VDC 4.9" W x 4.5" D x 1.9" H 1 lb. ....

CD-2 COMMUNICATIONS DECODER UNIT

Looks and operates similar to CD-1 but also includes an RS-232 serial port to export decoded CTCSS, DCS or DTMF data to your PC.
12-15 VDC 4.9" W x 4.5" D x 1.9" H 1 lb. ....

LT-2 TRUNKING DECODER UNIT

Decodes and displays user number and home repeater for all subscribers on E.F. Johnson LTR® Trunking repeaters. All decoded data is exported on the RS-232 Serial Port.
12-15 VDC 4.9" W x 4.5" D x 1.9" H 1 lb. ....

CD-2P APPLICATION PROGRAM

Maintains a history of CTCSS/DCS/DTMF data from your CD-2 occurring on the channel being monitored, creates useage graphs etc.
PC/DOS based. ....

LT-2P APPLICATION PROGRAM

Maintains a history of all decoded subcarrier data from your LT-2 occuring on LTR® Trunking systems you are monitoring. Creates usage graphs etc.
PC/DOS based. ....

Call or write for detailed brochures on any product.

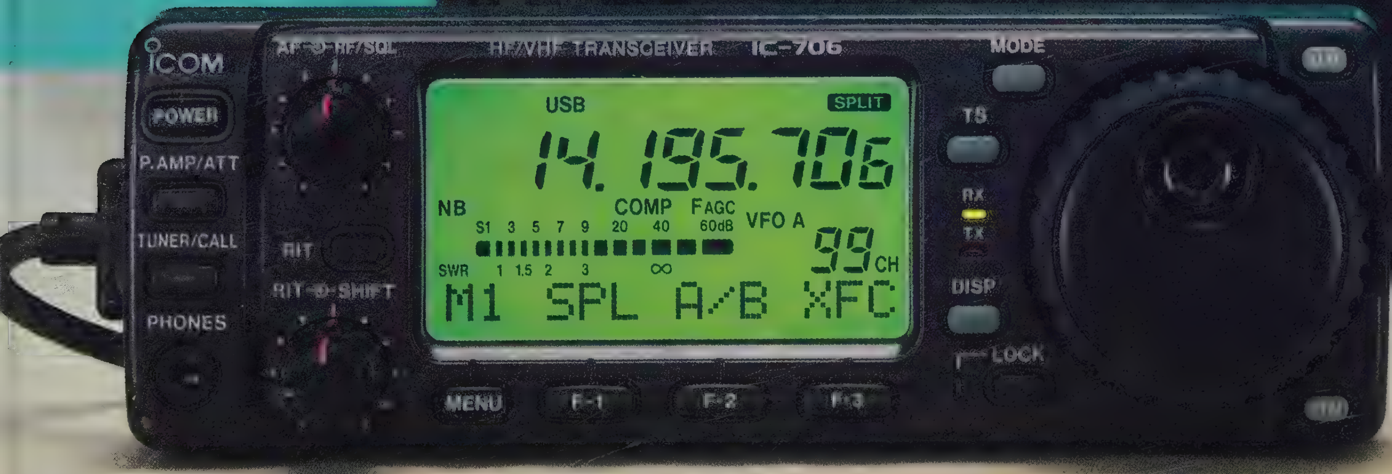
CONNECT SYSTEMS INC.
2259 Portola Rd. Ventura, CA. 93003
Phone (805) 642-7184 FAX (805) 642-7271

CSI is a registered trademark of Connect Systems Inc.
LTR is a registered trademark of E.F. Johnson Co.

IT'S HERE!

IC-706 • HF + 6M + 2M! • ALL MODES!

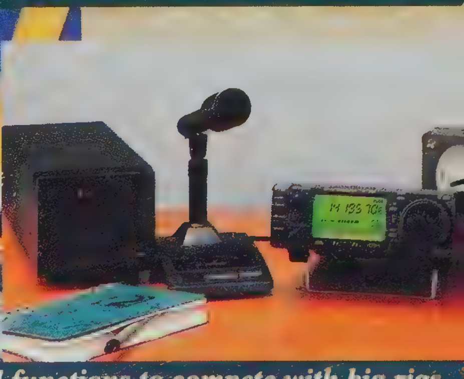
- Powerful 100 W from HF to 50 MHz and 10 W for 144 MHz
- 101 memory channels with dotmatrix display
- All mode including SSB, CW, RTTY, AM and FM.


ICOM
POWER
P.AMP/ATT
TUNER/CALL
PHONES
AF ⊙ RF/SQL
RIT
RIT ⊙ SHIFT
HF/VHF TRANSCEIVER IC-706
USB
SPLIT
14.195.706
NB
COMP
FAGC
VFO A
S1 3 5 7 9 20 40 60dB
SWR 1 1.5 2 3 ∞
99CH
M1 SPL A/B XFC
MENU
F-1
F-2
F-3
MODE
TS
RX
TX
DISP
LOCK

The front panel photo is **Actual size.**

Detachable front panel mounts any where.

Super compact at 6 9/16(W) × 2 1/4(H) × 7 7/8(D) in

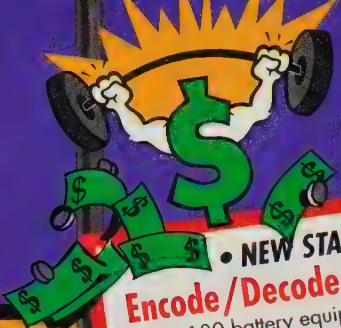


Full functions to compete with big rigs

Visit your ICOM dealer or call ICOM's brochure hotline: (206) 450-6088.
contact ICOM Technical Support in the HamNet forum on CompuServe @75540,525 (Internet: 75540.525
compuserve.com or http://www.icomamerica.com) CompuServe is a registered trademark of CompuServe
corporated, an H&R Block Company.

ICOM

© 1995 ICOM America, Inc. 2380-116th Ave. N.E., Bellevue, WA 98004. The ICOM logo is a registered trademark of ICOM, Inc. All stated specifications are subject to change without notice or obligation. *Manufacturer's suggested retail price as of 9/95 (subject to change without notice or obligation). 706CAN995Y



PRICES REDUCED!*

• NEW STANDARD FEATURES! •

Encode/Decode & 2.5 Watts of Power!

BP-180 battery equipped models. Limited availability.*

*See your ICOM dealer for details!

IC-W31A/IC-Z1A FEATURES:

- BP 180 (7.2 V @ 600 mAh) = 2.5 W; BP 171 (4.8 V @ 700 mAh) = 1.3 W
- Slim profile
- Tone scan
- Independent tuning knobs
- Multiple power-saver functions w/ battery voltage readout
- 180 mW audio output
- Accepts 4.5 – 16 V external power (13.5 V= 5 W max)
- UHF/UHF, VHF/VHF, or VHF/UHF band operation
- Simultaneous receive on both bands
- CTCSS encode/decode standar
- New HS-85 optional headset
- Auto repeater offset and memory
- Selectable DTMF auto dialing speed
- Adjustable power output (3 levels)
- Compatible with BC-79A drop-in charger (AD-51 req.)
- AM aircraft Rx
- MARS/CAP modifiable

All features are operational in both the single unit and remote configuration (separation kit included).

IC-Z1A

WORLD'S FIRST REMOTEABLE CONTROL PANEL!

ICOM'S NEXT GENERATION TECHNOLOGY IN DUAL BAND HANDHELDS The IC-W31A and IC-Z1A are both small, slim and jam-packed with features you wouldn't expect at such an affordable price.

IC-Z1A REMOVABLE REMOTE CONTROL PANEL IS A FIRST! – Better than a speaker-mic, the remoteable control panel provides a full functional display of all operating conditions (including bands and frequencies) and complete control of volume, operating modes, tuning, scan, band selection, ON/OFF, and PTT. The remote control panel comes standard with an extension cable and lapel clip.

IC-W31A TRADITIONAL SINGLE UNIT OPERATION –1/3 slimmer than its IC-Z1A cousin. Great looks match its outstanding performance.

ALPHANUMERIC MEMORY DISPLAY – Up to 6 characters for memory channel identification. 104 memories may be displayed by either the frequency or alpha name. An EEPROM prevents losing memory information if the battery runs down.

ALPHANUMERIC MESSAGE AND PAGING – Use the alpha display to transmit and receive up to 6 characters (using DTMF tones) as a simple message pager, acknowledgments, etc....

EASY TO USE BACKLIT KEYPAD – The keys are big, well-spaced and easy to use. For more information about the IC-W31A or the IC-Z1A, visit your local ICOM dealer, contact ICOM Technical Support in the HamNet forum on CompuServe© @ 75540,525 (Internet: 75540.525@compuserve.com) or call ICOM's brochure hotline: (206) 450-6088.

ICOM'S ON THE WEB!

http://www.icomamerica.com

ICOM

ICOM

THE NEXT GENERATION

IC-W31A

ULTRA SLIM DESIGN, BIG PERFORMANCE

©1995 ICOM America, Inc., 2380-116th Ave. N.E., Bellevue, WA 98004. The ICOM logo is a registered trademark of ICOM, Inc. All stated specifications are subject to change without notice or obligation. All ICOM radios significantly

ICOM VHF FLEXIBLE ANTENNA
FA-B2B

PRICE REDUCED
See your ICOM dealer for details!

More Fun Per Square Inch!

ICOM's IC-T22A (2M) and IC-T42A (440 MHz) are packed with features, power and performance. Best of all, they're really easy.... and fun... to use! The slim, compact design fits in a pocket . Take it everywhere you go!

Transmit with a big 3W (5W with 9.6V) output power. The big antenna, speaker and Next Generation circuitry provide big, crystal clear audio. The BP-180 ni-cd battery enables extended operation (5 - 6 hours) between charges.

The alphanumeric display makes it easy to identify what's stored in each memory channel. Use it as a simple alpha message pager too! Expanded receive capability (AM aircraft on T22A) with a simple keypad modification. MARS and CAP capable with a hardware modification.

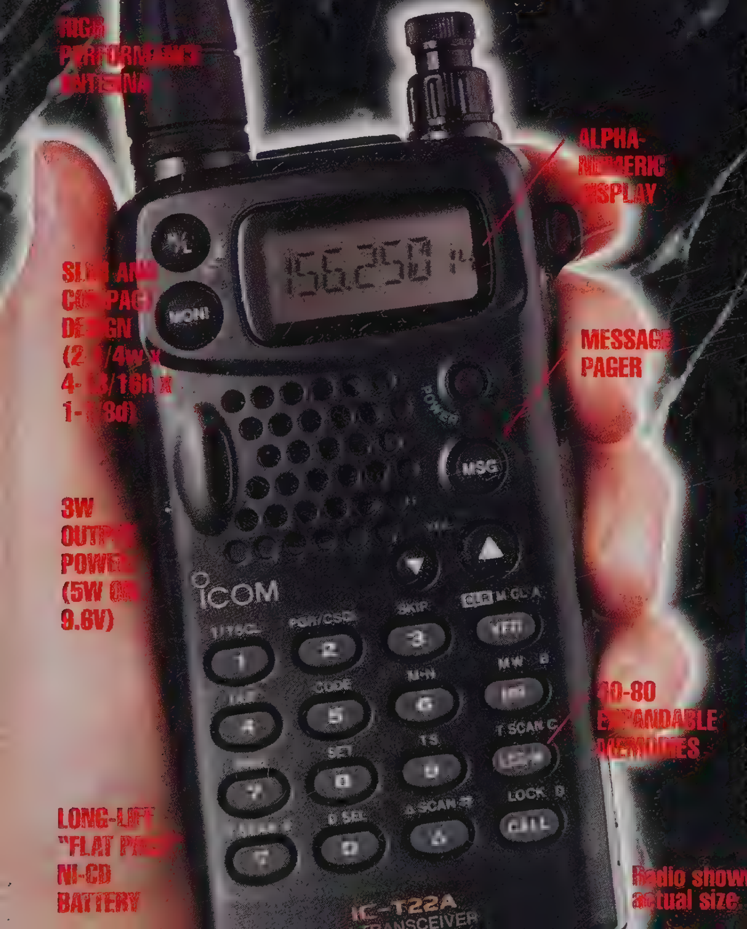
ICOM'S ON THE WEB!
http://www.icomamerica.com

Size up the new IC-T22A or IC-T42A for yourself at your local ICOM dealer, call our Brochure Hotline (206) 450-6088, or contact ICOM Technical Support in the HamNet forum on CompuServe© @ 75540.525 (Internet: 75540.525 @ compuserve.com)

©1995 ICOM America, Inc., 2380-116th Ave. N.E., Bellevue, WA 98004. The ICOM logo is a registered trademark of ICOM, Inc. All stated specifications are subject to change without notice or obligation. All ICOM radios significantly exceed FCC regulations limit spurious emissions. CompuServe is a registered trademark of CompuServe, Incorporated an H&R Block Company. T22A995Y

ICOM

ICOM
THE NEXT GENERATION


HIGH PERFORMANCE ANTENNA
ALPHA-NUMERIC DISPLAY
SLIM AND COMPACT DESIGN (2-1/4w x 4-13/16h x 1-1/8d)
MESSAGE PAGER
3W OUTPUT POWER (5W ON 9.6V)
80-80 EXPANDABLE MEMORIES
LONG-LIFE "FLAT PACK" NI-CD BATTERY
Radio shown actual size
156.250
MONI
POWER
MSG
ICOM
IC-T22A
TRANSCEIVER

ICOM Next Generation Dual Band Performance!

ULTRA HIGH SPEED SCAN – Catch more of what's going on! The IC-2350H scans twice as fast as older models*, and there are 7different scan modes to choose from! **WIDE BAND RECEIVE** – Monitor more frequencies right "out of the box" (no modification necessary), including aircraft, public safety, police, fire, marine, weather, and more (receive 118-174 MHz). **CRYSTAL CLEAR RECEPTION** – The built-in, adjustable (to 10db) RF attenuator improves blocking characteristics and provides a wide squelch sensitivity range, enabling crystal clear reception of desired signals while fighting IMD (intermodulation distortion) from pagers, land mobile equipment, and other forms of interference. **A COMBINATION OF GREAT FEATURES AT A VERY AFFORDABLE PRICE!** Listen in on all the action using the IC-2350H and discover what a great value this next generation radio is! Visit your ICOM dealer today and hear more of what you've been missing!

IC-2350H
FAST SCAN!
ICOM
MAIN DUP
146.900
LOW
444.150
V/MHz M/CALL DUP TONE LOW SCAN M/CALL V/MHz
VOL-S-SQL
DTMF
SET LOCK

ICOM'S ON THE WEB!

http://www.icomamerica.com

IC-2350H FEATURES:

- 2M (45 Watts) & 440 MHz (35 Watts)
- Wide Band Rx (118-174 MHz)
- 110 Channel Memory Backed Up with EEPROM
- Tone Scan (opt. UT-89)
- Remote Control Mic (opt. UT-101)
- PL Encode Built-in
- Built-in Duplexer
- Auto Repeater Shift
- Voice Synthesizer (opt. UT-66)

146820
443550

Call ICOM's brochure hotline: (206) 450-6088. Or contact ICOM Technical Support in the HamNet forum on CompuServe® 75540,525 (Internet: 75540.525@compuserve.com). *Scan methods that are approximately twice as fast: programmed, full memory and memory skip. © 1995 ICOM America, Inc., 2380-116th Ave. N.E., Bellevue, WA 98004. The ICOM logo is a registered trademark of ICOM, Inc. All stated specifications are subject to change without notice or obligation. All ICOM radios significantly exceed FCC regulations limiting spurious emissions. CompuServe is a registered trademark of CompuServe, Incorporated, an H&R Block Company. 2350195Q

ICOM

ICOM

THE NEXT GENERATION

NEW! Pull out signals no one else can!
ICOM
14.200.00
14.250.00
USB
LOCK

ICOM

IC-775 DSP

ICOM next generation technology for HF operators is now available! The IC-775DSP (also available without DSP as the IC-775, a version which can be modified at any time with the optional UI-100) is engineered from the ground up, using next generation design and components, offering a combination of features and performance you'll find nowhere else.

- **TRANSMIT DSP*** Precise control of transmit signals at the modulation stage produces a high quality SSB transmit signal that analog methods can't match.
- **RECEIVE DSP*** The digital signal processor separates the desired signal out from the noise before it enters the audio amplifier! Pull very weak signals right out of the noise!
- **ADVANCED INTERFERENCE REJECTION AND NOISE REDUCTION** Digital automatic notch, digital low/high pass filters*, digital ultra-narrow CW filter*, manual IF notch, manual audio peak filter, CW reverse mode and a noise blanker (with adjustable level and width) are next generation features providing incredibly clear signals.
- **DUAL WATCH** Dual watch with 2 independent tuning knobs enables monitoring of 2 frequencies...simultaneously.
- **TWIN PASS BAND TUNING** Allows you to zero in on and isolate a signal from both sides of the pass band. Ideal for contests, nets, etc...!
- **200 WATTS** Power MOS FETs in all stages of the PA unit provide excellent signal quality, good IMD characteristics and reliable full-duty cycle operation.
- **BUILT IN ANTENNA TUNER** A high speed tuner is built in and matches the connected antenna in all ham bands, including 160 m.
- **NEW DDS** The new Direct Digital Synthesizer system uses a new PLL which operates without a mixer and uses a single crystal which provides very high stability.
- **CW FEATURES** CW enthusiasts will love the electronic memory keyer, CW pitch control, CW reverse, full break-in (QSK) and two key jacks.

UNSURPASSED SIGNAL QUALITY... WITH REVOLUTIONARY DSP TECHNOLOGY ON TRANSMIT AND RECEIVE

Features you've only dreamed of:

- **ICOM DSP on Transmit and Receive**
- **Noise Reduction/Auto Notch***
- **Twin Pass Band Tuning**
- **Dual Receive**
- **200W MOS FET PA with built-in Power Supply**
- **Digital Noise Reduction*:**
  - **Digital Low and High Pass Filters**
  - **Digital Modulation/Demodulation**
  - **Digital Automatic Notch**
  - **Digital Ultra-Narrow CW Filter**
  - **Digital Automatic APF (Audio Peak Filter)**
- Rx 100kHz-29.990 MHz
- New Single Crystal Control DDS
- RTTY/DATA Mode
- HF Packet Ready
- IF Notch
- APF (Audio Peak Filter)
- Quick-Split Function
- Memory CW Keyer
- CW Pitch Control & CW Reverse Mode
- Two CW Key Jacks
- 1Hz Tuning and Display
- Large LCD with new CFL Back Light
- Built-In Automatic Antenna Tuner
- Dual Antenna System
- Selectable Pre-Amp (2 Levels) and RF Attenuator (3 Levels)
- Triple Band Stacking Register
- Built-In Tone Encoder
- VOX
- 99 Memory Channels
- XFC
- Noise Blanker with Adjustable Level and Width
- AGC with Adjustable Time Constant
- RF Speech Compressor
- Optional SSB filters
- Optional Speech Synthesizer

The new IC-775 DSP is the next generation rig you've been patiently waiting for. For more information about the IC-775DSP or the IC-775, visit your local ICOM dealer, contact ICOM Technical Support on the Hamnet forum on CompuServe© @ 75540,525, (Internet: 77540.525 @ compuserve.com) or **call ICOM's brochure hotline for more information: (206) 450-6088.**

ICOM
Experience the Quality

*DSP version only. ©1995 ICOM America, Inc., 2380-116th Ave. N.E., Bellevue, WA 98004. The ICOM logo is a registered trademark of ICOM, Inc. All stated specifications are subject to change without notice or obligation. All ICOM radios significantly exceed FCC regulations limiting spurious emissions. CompuServe is a registered trademark of CompuServe, Incorporated, an H&R Block Company. 775495Y

GRIP IT. LIVE IT.

New Dual Band! Wide band HT!

C508A

STANDARD has done it again!

Great radios come in small packages. First came the C108A - the tiniest 2m radio - operates on 2AA batteries and fits in your shirt pocket.

Next, GREATNESS evolved into the C508A the DUAL BAND big brother to the C108A - it too, fits in your shirt pocket and operates on 2AA batteries, and more... The C508A has 280mW of output (comparable to low power of most HT's on a nicad battery pack) adequate power to hit most local repeaters with its helical designed antenna.

Take it anywhere.

The C508A is perfect for HAMFESTS, picnics, hiking, or while using your mobile rig in cross- band repeat mode, for quick access to a distant repeater. Be confident that your carrying the BEST amateur radio - you've got a STANDARD. STANDARD has exceptional RF features, incredible extended receive capabilities and solid transmitting performance.

Specifications

- Frequency Coverage: 100-180 MHz Approx. 340-400 MHz 400-480 MHz
- AM programmable for aircraft
- 60 memories + 2-VFO, 2-Call
- CTCSS 39 tones-Encode/Decode
- 22 menu selections
- RF squelch
- Freq steps, 5, 10, 12.5, 15, 20, 25, 30 and 50
- Scan types: Busy, Pause or Hold Scan: 1 MHz, Entire band, Program, Memory, Specific memory frequencies, Block and CTCSS
- PTT and Frequency lock
- Keyboard lock
- Tone burst: 1750 Hz
- APO: Auto Power Off
- Battery save: 4 steps
- Auto power off: adjustable
- Output power: 280 mW
- Operates from 3V "2-AA"
- Size approx: 2.28" W, 3.35" L, 0.98" D
- Weight approx: 5.65 oz

* Modifications for MARS/CAP transmit require an appropriate license.
Specifications, features and price are subject to change without obligation or notice.

VHF & UHF IN YOUR SHIRT POCKET!!

DUAL BAND ANTENNA
PLUG IN A CMP123 EAR-MIC
FREQUENCY SELECTOR
EASILY PROGRAMMABLE MENU DRIVEN SCREEN
EASILY OPERATED VOLUME CONTROL
BACKLIT DISPLAY
TRUE PORTABILITY WITH TWO AA BATTERIES
60 FULLY PROGRAMMABLE MEMORIES
EQUIPPED WITH BATTERY PACK
444.72
146.85

TINIEST HAND-HELD

ACCESSORIES

- CHP111 Headset microphone
- CHP150 VOX microphone
- CLC502 Standard soft case
- CMP111 Speaker microphone
- CMP113 Tie pin microphone
- CMP115 Mini speaker microphone
- CMP123 Ear speaker/mic
- CNB401 NiCad battery pack
- CSA401A NiCad battery charger

C508A

SR STANDARD

STANDARD is the world's largest manufacturer of VHF-UHF Amateur Radio Equipment. For further information contact your Standard dealer or call (312)763-0081 FAX (312)763-3377Standard Amateur Radio Products, Inc. P.O. Box 48480 Niles, Illinois 60714

Get A Grip on these Savings!

Get a CASH Discount or FREE $50 value CMP115 Speaker-Microphone

C158A

C168A

C178A

C188A

☐ **$50 Value Speaker-Mic**

C178A 2 Meters (+low power 440)

The Deluxe Dual-Band HT

- Single-Band Price
- 5W (2M) at 12 VDC & 50mW (440)
- 40+ memories (opt 200+ with plug-in chip)
- 110-174 & 320-474MHz extended Rx (including AM air band)
- CTCSS Encode/Decode
- DTMF squelch with Paging
- Scanning-busy, pause or hold

☐ **$50 Value Speaker-Mic**

C168A 2 Meters

The Deluxe small HT

- 5 watts at 12 VDC
- 40+ memories (or optional 200+ memories with plug-in chip)
- 115 to 174MHz extended receive (including AM aircraft band)
- CTCSS Encode/Decode
- DTMF squelch with Paging
- Scanning-busy, pause or hold

☐ **$30 Cash Discount** or

☐ **$50 Value Speaker-Mic**

C228A 2M & 220MHz Deluxe Twin-Band HT

- 5W (2M and 220) at 12 VDC
- 40 memories (20 + 20 "limited" memories)
- 130-174 and 200-244MHz extended receive
- 1 Auto Dial memory
- CTCSS Encode/Decode
- DTMF squelch with Paging
- Scanning-busy, pause or hold

☐ **$30 Cash Discount** or

☐ **$50 Value Speaker-Mic**

C558A 2 Meter & 440MHz

Elegance, Balance and Twin-Band Performance

- 5W at 12 VDC
- 40+ memories (opt. 200+ memories with plug-in chip)
- 115-174 & 340-474MHz extended receive (including AM aircraft band)
- CTCSS Encode/Decode
- DTMF squelch with Paging
- Scanning-busy, pause or hold

STANDARD is the world's largest manufacturer of VHF-UHF Amateur Radio equipment

For further information, contact your Standard dealer or call (312)763-0081 FAX (312) 763-3377

☐ Instant Cash Discount ($ ______ CASH Discount issued by DEALER)

☐ or CUSTOMER mails in coupon for FREE CMP115 speaker microphone

C228A

C558A

C468A

C528A

☐ **$30 Cash Discount** or

☐ **$50 Value Speaker-Mic**

C158A 2 Meters

The Affordable HT

- 5 watts at 12 VDC
- 20 memories
- 130 to 170MHz extended receive
- Unsurpassed 0.158 microvolts sensitivity
- CTCSS Encode and Decode
- DTMF squelch with Paging
- Scanning-busy, pause or hold

☐ **$25 Cash Discount** or

☐ **$50 Value Speaker-Mic**

C188A 2 Meters

The Slim-Line HT

- **Fits in your shirt pocket!**
- 5W at 12 VDC
- 40+ memories (or optional 200+ memories with snap-in chip)
- 115-174MHz extended receive (including AM air band)
- CTCSS Encode/Decode
- DTMF squelch with Paging
- Scanning-busy, pause or hold

☐ **$50 Value Speaker-Mic**

C468A 440MHz

The Deluxe small HT

- 5 watts at 12 VDC
- 40+ memories (or optional 200+ memories with plug-in chip)
- 400-474MHz extended receive
- CTCSS Encode/Decode
- DTMF squelch with Paging
- Scanning-busy, pause or hold

☐ **$25 Cash Discount** or

☐ **$50 Value Speaker-Mic**

C528A 2M & 440MHz Deluxe Twin-Band HT

- 5W (2M and 440) at 12 VDC
- 40 memories (20 + 20 "limited" memories)
- 130-174 and 300-474MHz extended receive
- CTCSS Encode/Decode
- DTMF squelch with Paging
- Scanning-busy, pause or hold

SR STANDARD

For more information on this and other Standard products, please contact your nearest STANDARD dealer.Specifications, price and features are subject to change w/o obligation or notice

STANDARD is the world's largest manufacturer of VHF-UHF Amateur Radio equipment

For further information, contact your Standard dealer or call (312)763-0081 FAX (312) 763-3377

To Standard customer: Call your STANDARD dealer for the immediate Cash Discount of $30 on C158A, C228A, and C558A or $25 on C188A and C528A.Or, picking the Free $50 Value Speaker Microphone CMP115, mail this filled-in coupon direct to STANDARD, along with a copy of your sales receipt for the Free CMP115 Speaker Microphone. The Free CMP115 applies to C158A, C168A, C178A, C188A, C468A, C528A, C228A and C558A, and the CMP115 will be mailed directly to you from STANDARD.not from dealer stock. Please allow a minimum of 3 weeks for processing and mailing of the CMP115. These two offers cannot be combined with each other. Not valid with any other STANDARD offer or discount. No substitutions. Coupon is not transferable, and has no cash value. Offer valid for radios sold by authorized STANDARD Amateur Radio dealers.

Check with STANDARD or your dealer for the expiration date of this offer. All coupons sent to STANDARD must be postmarked by the 15th of each proceeding month while sale is valid. Void where prohibited.

To STANDARD dealer: To receive credit for Cash Discount, given at the time of sale, follow all applicable conditions as per above, and mail this filled-in coupon to STANDARD with a copy of sales receipt.

Send filled-in coupon, with a copy of sales receipt to:

Standard Amateur Radio Products, Inc. P.O. Box 48480 Niles, IL 60714

Modification for MARS/CAP requires appropriate license.

146.970
448.525
KENWOOD
Dual
Scan Mode
Time 1
TH-79A
KENWOOD
TONE SEL
MENU

Low Drain, No Pain!

Clones! Clones!

Cloning allows you to copy all memory channel information from one TH-79A(D) to another TH-79A(D)

TH-79A (Deluxe)

FM DUAL BANDER

Information at your fingertips. Everything you need to know about operating the new TH-79A(D) FM dual-bander (144MHz/440MHz) can be viewed in its unique dot-matrix LCD with alphanumeric display. No need for the manual. In addition to this innovative guide function, the TH-79A(D) sports a user-friendly menu system, providing easy access to the many powerful features of this slim-line handheld transceiver. Such as 82 non-volatile memory channels with ID, DTSS and page functions, and a DTMF memory function for autodial operation. Full-crossband duplex operation is available, as is the ability to receive two frequencies on the same band (VHF+VHF or UHF+UHF) simultaneously. And thanks to the FET power module, long hours of operation are possible on one charge. With the TH-79A(D), transceiver technology enters the 21st century.

Features

NEW 5-WATT VERSION NOW AVAILABLE

- 2.7 approx. output (144MHz), 2W approx. output (440MHz) from MOS FET power module and supplied 6V battery, 5W approx. output using optional PB-34 ■ Dot-matrix LCD with menu/guide system
- 82 non-volatile memory channels with ID
- DTMF keypad with memory function
- DTSS (Dual Tone Squelch System) with page
- Built-in CTCSS tone encoder/decoder ■ Automatic band change
- Power-on call sign display ■ Auto repeater offset (VHF)
- Wide-range flexible antenna ■ Input over-voltage warning
- 3-position output power control
- Auto power-off and battery save function ■ Time-out timer
- Memory channel lock-out (scan mode)
- Cross-band repeater function ■ Page answer back function
- Channel display function ■ Wideband receiver coverage, including AM receive on the aircraft band* ■ Clone function
- Modifiable for MARS/CAP use**

*Specifications guaranteed for Amateur bands only.
**Permits required. Specifications guaranteed for Amateur bands only.

KENWOOD COMMUNICATIONS CORPORATION
AMATEUR RADIO PRODUCTS GROUP
P.O. Box 22745, 2201 E. Dominguez St., Long Beach, California 90801-5745
Customer support/Brochures (310) 639-5300
Repair Locations/Parts (800) KENWOOD Bulletin Board Service (BBS) (310) 761-8284
KENWOOD ELECTRONICS CANADA INC.
6070 Kestrel Road, Mississauga, Ontario, Canada L5T 1S8

95ARD-1138

KENWOOD

To hear or not to hear?
Introducing the remarkable new TS-870S HF All-Mode Transceiver with Next Generation IF-Stage DSP
KENWOOD

Intelligent Digital Enhanced Communications System

DSP at the IF stage is now a reality with Kenwood's new TS-870S HF transceiver. This new design uses state-of-the-art DSP chips that provide for receiving enhancements to bring signals out of the noise. Imagine over 100dB out of pass band attenuation with virtually no signal loss by the DSP filter! Imagine CW bandwidth adjustable to 50 Hz! Advanced speech processing with transmit equalization that will make you the first in pile-ups! Plus, complete computer operation and control of the TS-870S is possible with supplied MS Windows® software and a built-in RS-232C port. Enjoy future technology now with the TS-870S.

TS-870S

HF TRANSCEIVER

FEATURES

▮ IF Stage Digital Signal Processing ▮ Multi-Function Digital Filtering (no optional filters required) ▮ Dual-Mode Noise Reduction ▮ Beat Canceller ▮ Auto Notch Filter ▮ Variable AGC ▮ Selectable Voice Equalizer (SSB & AM) ▮ Speech Processor ▮ Selectable Transmit Equalizer ▮ High Speed (57.6 kbps) Computer Control with MS Windows® Software included ▮ Built-in RS-232C Port ▮ 100 Watts Output on SSB, CW, FM, FSK; 25 Watts on AM ▮ 100 kHz ~ 30 MHz General Coverage Receiver ▮ Full -Function K1 LogiKey Keyer ▮ Built-in Automatic Antenna Tuner (TX & RX) ▮ 2 Antenna Terminals ▮ Receiver Antenna Terminal ▮ Dual VFOs with 100 Memory Channels Plus 5 Quick Memory Channels ▮ Full Band Scan, Programmable Band Scan, Group Scan, Memory Scan with Memory Channel Lock-Out ▮ Built-in Tone Encoder (FM) ▮ Easy-to-use Menu System for Quick Setting of Functions ▮ High Quality 60 Second Digital Recording Unit Option (DRU-3) ▮ Voice Synthesizer Unit Option (VS-2)

KENWOOD COMMUNICATIONS CORPORATION
AMATEUR RADIO PRODUCTS GROUP
P.O. Box 22745, 2201 E. Dominguez St., Long Beach, California 90801-5745
Customer support/Brochures (310) 639-5300
Repair Locations/Parts (800) KENWOOD Bulletin Board Service (BBS) (310) 761-8284
KENWOOD ELECTRONICS CANADA INC.
6070 Kestrel Road, Mississauga, Ontario, Canada L5T 1S8

KENWOOD

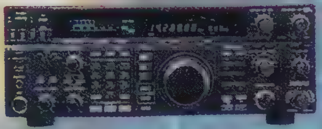
95ARD-1256

Explore the Kenwood Dimension

The finest selection of communications equipment for the Amateur Radio enthusiast

HF TRANSCEIVERS

TS-950SDX •160m to 10m amateur band operation, 100kHz to 30MHz general coverage receiver •Built-in DSP (Digital Signal Processor) •MOS-type FET final section •Dual frequency receive •Menu system



TS-850S •160m to 10m amateur band operation, 100kHz to 30MHz general coverage receiver •DDS (Direct Digital Synthesizer) & digital PLL system •AIP (Advanced Intercept Point) system •IF slope tuning •Electronic message keyer circuit with weighting control

TS-450S/690S •160m to 10m amateur band operation, 500kHz to 30MHz general coverage receiver •6m amateur band and 50–54MHz general coverage receive (TS-690S) •DDS (Direct Digital Synthesizer) & digital PLL system •AIP system •IF shift function tuning •AF notch filter

TS-140S •160m to 10m amateur band operation, 500kHz to 30MHz general coverage receive •IF shift circuit •31 memory channels with multi-scan functions •Dual-mode noise blanker •Speech processor with audio compression amplifier

TS-50S •Super-compact, 100-watt, 160m to 10m transceiver, 500kHz to 30MHz general coverage receiver •DDS (Direct Digital Synthesizer) with "fuzzy logic" control •AIP system •100-memory channels •CW reverse •Menu system

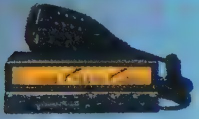
ALL-MODE TRANSCEIVERS

TS-790A •144/440MHz dual-band operation •1200MHz unit (option) •All-mode operation •Satellite communications with Doppler effect frequency correction •59 multi-function memory channels with lithium battery back-up

TS-60S •50MHz all-mode operation •Max. 90W RF output (SSB, CW & FM) •100 memory channels •DDS with "fuzzy logic" control •AIP, IF shift (SSB & CW) and optional 500Hz CW filter •Dual-menu system

TM-255A/455A •All-mode operation (TM-255A: 144MHz; TM-455A: 430MHz) •101 memory channels •DDS with "fuzzy logic" control •TF-SET (TX frequency set) function •DTSS selective calling with page •1200/9600bps packet terminal

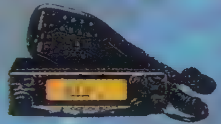
FM MOBILE TRANSCEIVERS



TM-742A/642A/942A
•Multi-band operation (TM-742A: 144/440MHz; TM-642A: 144/220MHz; TM-942A: 144/440/1200MHz) •Optional FM band units for TM-742A/642A (TM-742A: 28/50/220/1200MHz; TM-642A: 28/50/440/1200MHz) •Dual/triple receive capability •101 memory channels per band •Detachable display & control panels (option)

TM-733A •144MHz/440MHz dual-band operation •Dual receive on same band (VHF +VHF or UHF +UHF) •"6-in-1" programmable memory •72 memory channels •DTSS selective calling with page •1200/9600bps packet terminal •AIP system •Cross-band repeater function

TM-241A/331A/441A
•Single-band operation (TM-241A: 144MHz; TM-331A: 220MHz; TM-441A: 440MHz) •20 multi-function memory channels plus call channel •Multi-scan capability •Selectable CTCSS tone encoder •Multi-function microphone supplied



TM-251A/451A •Single-band operation (TM-251A: 144MHz; TM-451A: 440MHz) •41 memory channels (optionally expandable to 200) •Dual-band receive •Digital recording system •DTSS selective calling with page •1200/9600bps packet terminal

COMMUNICATION RECEIVER

R-5000 •100kHz to 30MHz in 30 bands, with optional 108–174MHz coverage •SSB, CW, AM, FM & FSK modes •Dual IF crystal filters •IF shift circuit •100 memory channels with multi-scan functions

FM HANDHELD TRANSCEIVERS

TH-79A(D) Deluxe
•144MHz/440MHz dual-band operation •Mos FET power module •Dot-matrix LCD, guide function & menu system •Wide range flexible antenna •Dual receive on same band •82 non-volatile memory channels in E²PROM •ID memory & DTMF memory •Built-in CTCSS encode/decode •Cross-band repeater function

TH-28A/48A
•Single-band transmit and dual-band receive (TH-28A: TX 144MHz/RX 144/440MHz, TH-48A: TX 440MHz; RX 144/440MHz) •Alphanumeric memory •Alphanumeric message paging •40 multi-function memory channels (non-volatile) •Tone alert system with indicator

TH-22AT/42AT
•Single-band operation (TH-22A: 144MHz; TH-42A: 440MHz) •MOS FET power module •Built-in DTMF keypad •40 memory channels in E²PROM (plus 1 call channel) •Multiple scan functions •Dual scan stop modes (CO & TO) •Channel Display function

KENWOOD COMMUNICATIONS CORPORATION
AMATEUR RADIO PRODUCTS GROUP
P.O.BOX 22745, 2201 East Dominguez St., Long Beach, CA 90801-5745
•Customer Support/Brochures (310)639-5300
•Repair Locations/Parts (800) KENWOOD •Bulletin Board Service (BBS) (310)761-8284

KENWOOD

95ARD-1210

GaAsFET Preamps

MIRAGE

High gain ***ultra low noise*** GaSa-FET preamps help you receive weak signals. Selectable gain prevents receiver intermod. 15 to 22 dB gain. Less than 0.8 dB noise figure. Automatic RF switching up to 160 watts.

Choose *In-Shack* model or *Mast Mount* (includes remote control) model to reduce loss. Rugged die-cast enclosure.

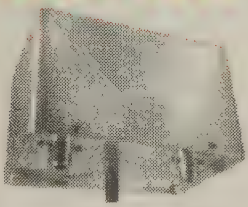
Frequency (MHz)	In-Shack $139	Mast Mount $195
28-30	KP-2/10M	KP-1/10M
50-54	KP-1/6M	KP-2/6M
144-148	KP-1/2M	KP-2/2M
220-225	KP-1/220	KP-2/220
430-450	KP-1/440	KP-2/440

LANDWEHR

Landwehr's affordable, high quality, mast-mounted preamps for the amateur come in three models: 2 meters, 220 MHz and 440 MHz. The GaAs-FET design provides gains up to 18 dB with a low noise figure. Features include type-N connectors and automatic T/R switching up to 150 watts. The preamp is **very popular** with satellite and "weak signal" enthusiasts.

VHF / UHF Preamps

AMPIRE



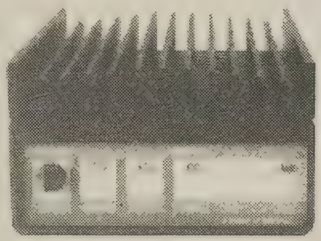
Ampire's low noise pre-amplifiers for VHF and UHF automatically switch from receive to transmit when the transmitter is keyed. In receive mode they feature a helical filter with a narrow bandpass.

In case of power loss, the relay will drop out of the transmit mode.

VHF / UHF Amps

rfconcepts

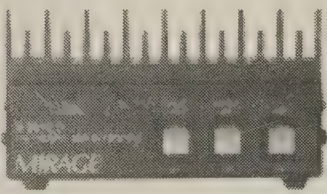
VHF / UHF Amplifiers



For that "extra punch" needed for distant con-tacts, many RF Concepts models feature GaAs-FET receiver pre-amps for weak signals. The amplifiers are all mode, solid-state and made in the USA. Each features a one year warranty on parts and labor and 6 months on the RF power transistors. See pages 49 and 72 for more details.

MIRAGE

Please see the chart on page 72 for detailed specs and model numbers. All the amps have a 5 year warranty and 1 year on the RF power transistors.

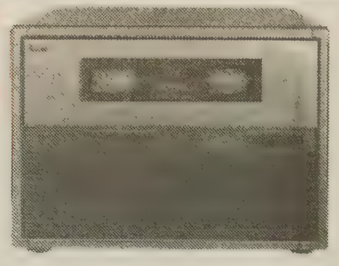


B2516

Turn your mobile, base and handheld into a powerhouse and talk further, longer, clearer. All modes: FM, SSB, CW. GaAs-FET preamp, overdrive, high SWR, over-temperature protection. These amps are rugged and remote controllable. Add a Mirage amp to your handheld or base station and get 40 to 600 watts of POWER. Choose from 47 amps, for 6 meters through 70 cm– there's one for you – all modes, continuous duty repeater, amateur TV, and even commercial applications.

RC-1 Remote Control Head – For all Mirage amps except B-23S, B-23G, C-22G and D-26N. **HRO Price $42.00**

JRC



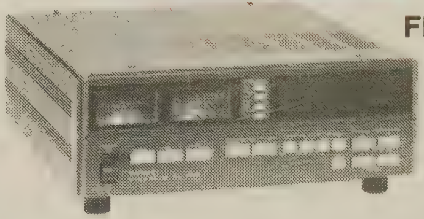
JRL-2000F

$4899.95

Suggested List
Call for Quote

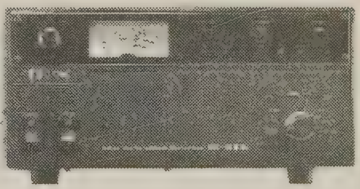
The JRL-2000F has solved the problems of many conventional linear amplifiers: troublesome manual operation, fan noise, low margin of output and high IMD. The JRL-2000F is a heavy duty amp using 48 MOSFET for low distortion, high speed automatic antenna tuner, high efficient switching power supply, automatic antenna selector, and wireless remote control unit. Provides 1 kW output with a maximum input of 100 watts. Shipped by truck or FEDEX only. Shipping cost extra.

YAESU



FL-7000

Yaesu's solid-state amplifier requires less than 100 watts to drive and produces 600 watts output power. It comes with a built-in automatic antenna tuner. The built-in power supply operates on 100-234 VAC, but an internal modification is required to change the voltage. The duty cycle on SSB is 30 minutes, or, for full carrier, 2 minutes. The amp obtains its band data directly from the Yaesu exciter and band changes are automatic. Band data can be selected from the front panel so the amp can be used with other manufacturer's exciters. The amp comes with an interface cable for the FT-757. Optional cables are required for the FT-767, FT-990, FT-1000 (E767), FT-890 (CT-11) or the FT-980 (E980).



ICOM

IC-2KL HF Amplifier

Icom's solid-state linear amplifier offers broadband tuning on 160-15 meters. No need to tune the amp as you go from band to band since automatic band switching information is provided directly from all Icom HF radios. Use a switch on the front of the amp for band selection with other manufacturer's exciters. The 2KL requires 50-80 watts of drive. Nominal output in all modes is 500 watts. It is supplied with an external power supply, the IC-2KLPS, which operates on 110 (factory wired) or, with internal modification, 220 VAC.

IC-4KL HF Amplifier

1000 watts out for one hour at full duty cycle, separate controller and amp, automatic high speed antenna tuner, full break-in operation, built-in 40 volt 60 amp power supply with automatic selection for 110 (factory wired) or 220 VAC. 220 VAC is recommended. Comes with handles for rack mounting.

AMPLIFIERS

HRO will provide 10 meter modification information to amplifier customers upon receipt of a copy of your valid, current amateur radio license.

Manufacturer	Model	Frequency Range	Modes	Power In	Power Out	Voltage	Current	Pre-amp	Connector	Wgt	List Price Call for HRO Discount Price
Ameritron	AL-1500	160-15 M*	SSB. CW	65 W	1500+ W	220 VAC	15 A	–	SO-239	50 lbs#	$2,695.95
	AL-1200	160-15 M*	SSB. CW	100 W	1500 W	220 VAC	15 A	–	SO-239	50 lbs#	$2,195.95
	ALS-500M	160-15 M*	SSB. CW	100 W	500 W	13.8 VDC	80 A	–	SO-239	7 lbs	$799.95
	ALS-600	160-15 M*	SSB. CW	100 W	600 W	110/220 VAC	12 A 110V	–	SO-239	13 lbs#	$1,299.95
	AL-80B	160-15 M*	SSB, CW	100 W	1000 W	110/220 VAC	15/10 A	–	SO-239	54 lbs	$1,195.95
	AL-800	160-15 M*	SSB, CW	100 W	750 W	110 VAC	12 A	–	SO-239	67 lbs	$1,595.00
	AL-800H	160-15 M*	SSB, CW	55 W	1500 W	240 VAC	9 A	–	SO-239	69 lbs	$2,295.00
	AL-811	160-15 M*	SSB, CW	75 W	600 W	110/220 VAC	8/4 A	–	SO-239	40 lbs	$649.95
	AL-811H	160-15 M*	SSB, CW	75 W	800W	110/220 VAC	8/4 A	–	SO-239	41 lbs	$795.95
	AL-82	160-15 M*	SSB, CW	100 W	1500 W	220 VAC	15 A	–	SO-239	52 lbs#	$2,095.95
Icom	IC-2KL	160-15 M*	SSB, CW	100 W	500 W	110/220 VAC	20 A 110V	–	SO-239	45 lbs	$2,710.95
	IC-4KL	160-15 M*	SSB,CW	100 W	1000 W	110/220 VAC	18 A 220V	–	SO-239	80 lbs	$9,000.95
JRC	JRL-2000F	160-12 M*	SSB,CW	100 W	1000 W	110/220 VAC	2.5 kVA	–	SO-239	62 lbs	$4,899.95
Mirage	A -1015G	50-54 MHz	All	10 W	150 W	13.8 VDC	23 A	yes	SO-239	5 lbs	$389.95
	A -1035G	50-54 MHz	All	10 W	350 W	28 VDC	23 A	yes	SO-239	5 lbs	$653.95
	B-23	144-148 MHz	All	2 W	30 W	13.8 VDC	5 A	–	SO-240	1 lbs	$149.95
	B-23G	144-148 MHz	All	2 W	30 W	13.8 VDC	5 A	20 dB	SO-239	2 lbs	$177.95
	B-215G	144-148 MHz	All	2 W	150 W	13.8 VDC	20 A	25 dB	SO-239	5 lbs	$377.95
	B-108G	144-148 MHz	All	10 W	80 W	13.8 VDC	12 A	10 dB	SO-239	3 lbs	$227.95
	B-1016G	144-148 MHz	All	10 W	160 W	13.8 VDC	25 A	10 dB	SO-239	5 lbs	$377.95
	B-1030G	144-148 MHz	All	10 W	300 W	13.8 VDC	48 A	yes	SO-239		$687.95
	B-1060G	144-148 MHz	All	10 W	600 W	28 VDC	52 A	yes	SO-239		$1,094.95
	B-2516G	144-148 MHz	All	25 W	160 W	13.8 VDC	25 A	10 dB	SO-239	5 lbs	$318.95
	B-2530G	144-148 MHz	All	25 W	300 W	13.8 VDC	48 A	yes	SO-239	15 lbs	$687.95
	B-2560G	144-148 MHz	All	30 W	300 W	28 VDC	52 A	yes	SO-239	15 lbs	$1,094.95
	B-5016G	144-148 MHz	All	50 W	160 W	13.8 VDC	24 A	yes	SO-240		$318.95
	B-5030G	144-148 MHz	All	50 W	300 W	13.8 VDC	48 A	yes	SO-241		$669.95
	B-5060G	144-148 MHz	All	50 W	600 W	28 VDC	45 A	yes	SO-239	15 lbs	$1,094.95
	C-22	222-225 MHz	All	2 W	20 W	13.8 VDC	5 A	–	SO-238		$1,094.95
	C-22G	222-225 MHz	All	2 W	20 W	13.8 VDC	5 A	yes	SO-239	2 lbs	$177.95
	C-211G	222-225 MHz	All	2 W	110 W	13.8 VDC	20 A	yes	SO-239	5 lbs	$357.95
	C-106G	222-225 MHz	All	10 W	60 W	13.8 VDC	12 A	yes	SO-239	4 lbs	$238.95
	C-1012G	222-225 MHz	All	10 W	120 W	28 VDC	5 A	yes	SO-239	5 lbs	$357.95
	C-1022G	222-225 MHz	All	10 W	60 W	13.8 VDC	20 A	yes	SO-239	4 lbs	$238.95
	C-2512G	222-225 MHz	All	25 W	120 W	13.8 VDC	20 A	yes	SO-239	5 lbs	$334.95
	C-2522G	222-225 MHz	All	30 W	200 W	13.8 VDC	42 A	yes	SO-239		$699.95
	C-5012G	222-225 MHz	All	50 W	120 W	13.8 VDC	20 A	yes	SO-239		$699.95
	C-5022G	222-225 MHz	All	50 W	240 W	13.8 VDC	42 A	yes	SO-239		$699.95
	D-15N	425 - 450 MHz	All	2 W	15 W	13.8 VDC	3 A	–	N type		$187.95
	D-26N	430-450 MHz	All	2 W	60 W	13.8 VDC	12 A	–	N type	2 lbs	$283.95
	D-1010N	430-450 MHz	All	10 W	100 W	13.8 VDC	20 A	–	N type	5 lbs	$414.95
	D-3010N	430-450 MHz	All	30 W	100 W	13.8 VDC	20 A	–	N type		$361.95
	D-100-ATVN	429 MHz ATV	All	1 W	52 W	13.8 VDC	20 A	–	N type		$414.95
	D-1010-ATVN	430 MHz ATV	All	10 W	100 W	13.8 VDC	20 A	–	N type		$414.95
RF Concepts	2-23	143-149 MHz	All	.2-5 W	(2 in) 30 W	13.8 VDC	5 A	15 dB	SO-239	2 lbs	$149.95
	2-70	143-149/430-450 MHz	FM	.5-7 W	(5in)30 / 20 W	13.8 VDC	5 A		BNC	3 lbs	$259.95
	2/70G	143-149/430-450 MHz	FM	.5-7 W	(5in)30 / 20 W	13.8 VDC	6 A	15/10 dB	BNC	3 lbs	$289.95
	2/70H	144-148/438-450 MHz	FM	20-50 W	200 / 125 W	13.8 VDC	40 A	–	BNC	11 lbs	$799.95
	2-315	143-149 MHz	All	5-50 W	(30 in) 150 W	13.8 VDC	22 A	18 dB	SO-239	5 lbs	$319.95
	2-417	143-149 MHz	All	.2-50 W	(45 in) 170 W	13.8 VDC	22 A	18 dB	SO-239	5 lbs	$319.95
	3-22	220-225 MHz	All	.2-5 W	(2 in) 20 W	13.8 VDC	4 A	15 dB	SO-239	2 lbs	$149.95
	3-112	220-225 MHz	All	.2-15 W	(10 in) 120 W	13.8 VDC	22A	18 dB	SO-239	5 lbs	$349.95
	3-211	220-225 MHz	All	.2-5 W	(2 in) 110 W	13.8 VDC	22A	18 dB	SO-239	5 lbs	$349.95
	3-312	220-225 MHz	All	.2-30 W	(30 in) 120 W	13.8 VDC	20 A	18 dB	SO-239	5 lbs	$329.95
	4-310	420-450 MHz	All	.2-40 W	(30in)100 W	13.8 VDC	20 A	12 dB	N type	5 lbs	$359.95
	4-110	420-450 MHz	All	.2-15 W	(10 in) 100 W	13.8 VDC	22 A	12 dB	N type	5 lbs	$389.95
	4-32	420-450 MHz	All	.2-5 W	(3 in) 20 W	13.8 VDC	4 A	12 dB	SO-239	2 lbs	$159.95
	VHF-1-60	144-148 MHz	FM	1-8 W	(1 in) 60 W	13.8 VDC	14 A		SO-239	7 lbs	$249.95
SGC	SG-500	Export only	SSB,CW		500 W	13.8 VDC	**				$999.95
Yaesu	FL-7000	160-15 M*	SSB, CW	100 W	600 W	110/220 VAC	20/10 A	–	SO-239	60 lbs	$2,459.95

* Owner modifiable for 10 meters # Add 35 pounds for transformer shipped in separate package. ** SGC PS-50 recommended to meet specs

VAN GORDEN

Patch Cables

Use the Van Gorden Patch Cables to connect your amp to your rig. They are constructed from RG-8X coax with silver teflon PL-259 connectors. Use the longer cables for those antenna runs.

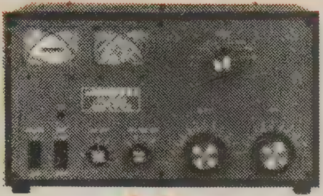
Model	Length (feet)	HRO Price
8X-1.5ST	1.5	$6.99
8X-3ST	3	$8.99
8x-6ST	6	$11.99
8X-12ST	12	$14.95
8X-18ST	18	$18.95
8X-50ST	50	$29.95
8X-100ST	100	$49.95

Call Toll Free
From Canada Too

Western 1-800-854-6046
Eastern 1-800-444-0047

AMERITRON AMPS & ACCESSORIES

Desktop Amplifiers



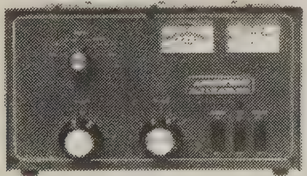
AL-800 NEW! **AL-800H**
$1595 **$2295**
Suggested List—Call For Quotes

Ameritron has two new linear amplifiers with Eimac 3CX800A7 tubes. The AL-800 uses a single tube providing 1200 watts PEP. The AL-800H uses two tubes to provide 1500 watts output. The amps cover 160-15 meters and are user modifiable for 12 and 10 meters. They offer most of the quality features of the Ameritron family of amplifiers.

AL-80B

$1195.95
Suggested List
Call for HRO DISCOUNT PRICE

Ameritron's AL-80B gets a kW PEP output from a compact desktop linear that plugs into a 120 VAC outlet. You get 850 watts output on CW and 500 watts output on RTTY. It covers all bands 160-15 meters including WARC and MARS. It is user modifiable for 10/12 meters with the proper license. The amp has an extra heavy duty power supply, Eimac® 3-500Z tube, nearly 70% efficiency, tuned input, Pi/Pi-L output, inrush current protection, multi-voltage transformer, dual cross-needle meters, QSK compatibility, two-year warranty. Made in the USA.



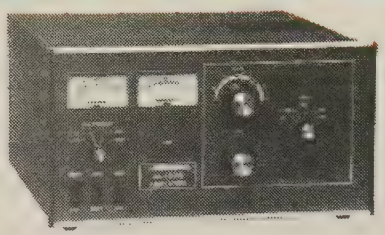
AL-811 3 tube model / 600 watts output.
Suggested List $649.95

AL-811H 4 tube model / 800 watts output.
Suggested List $795.95
Call for HRO DISCOUNT PRICES

These low-cost HF amps give you plenty of power to burst thru QRM. Both desktop linears are so compact they will slip right into your ham shack and plug into your nearest 120 VAC outlet. You get three (or four) tough 811A transmitting tubes plus an extra heavy duty power supply, all HF band coverage, pressurized ventilation, tuned input, dual illuminated meters, adjustable ALC, operate / stand-by switch, transmit LED, UPS shippable.

Legal Limit Linears

These rugged linears use a super heavy duty hypersil® power supply!



AL-1500

Ameritron's super power amplifier, AL-1500 uses the herculean Eimac® 8877 ceramic tube. It is so powerful that 65 watts drive gives you full legal output, and it is just loafing. The power supply is capable of 2500 watts PEP. **Suggested List $2695.95**

AL-82 – 2 Eimac® 3-500Z tubes, 1500 watts. **Suggested List $2095.95**

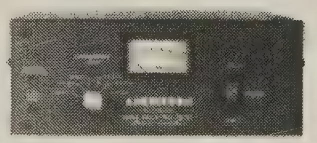
AL-1200 – Eimac® 3CX1200A7 tube, 1500 watts. **Suggested List $2195.95**
Call for HRO DISCOUNT PRICES

Solid State HF Amps

ALS-600

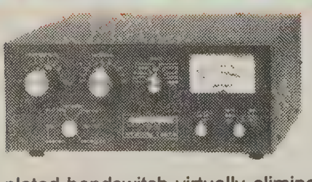
Ameritron now has a no-tune solid-state FET amplifier for HF base station use. Features no tuning, 600 W output, continuous 1.5-22 MHz coverage, instant band switching. Fully SWR protected. The included separate ALS-600PS power supply comes wired for 120 VAC. **Suggested List $1299.95**
Call for HRO DISCOUNT PRICE

ALS-500M



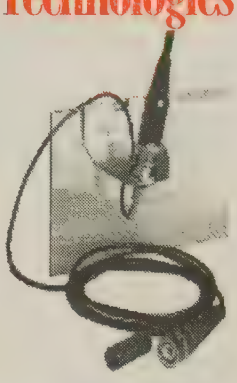
For mobile, 13.8 VDC operation, this is the amplifier. It features 500 watts output **Suggested List $799.95**
Call for HRO DISCOUNT PRICE

Antenna Tuner



Ameritron—*the high power specialists* —brings you a tuner designed for legal limit amplifiers. Heavy duty silver plated bandswitch virtually eliminates switch failure. High power transmitting capacitors. 1.8-30 MHz. Peak reading SWR/wattmeter. 6 position antenna switch. Selectable 1:1 or 4:1 balun. Meter lamps require 12 VDC. **Suggested List $399.95**

Oak Bay Technologies



AM-101B

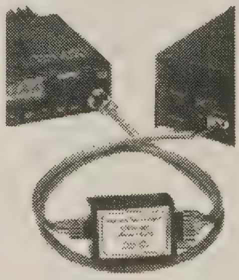
Rubber Duck Mount

The perfect temporary antenna mount for emergencies, rental cars or vacations. Made of stainless steel, it has 15 watt power capability. Just slip over your window glass and attach your handheld antenna to the BNC connector. 6 feet of RG-174U coax provided. **HRO Price $24.95**

PS-101

High Current Power Strip

This high current 12 VDC power strip for the ham shack has heavy-duty steel housing construction with current handling up to 50 amps. It has 5 fused outlets, 2-30 amp and 3-20 amp. It is perfect for HF radios or those high power VHF / UHF amplifiers. **HRO Price $79.95**



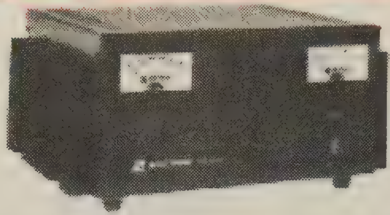
CA-232-U

Universal Packet Cable

UNI-Cable™ provides interface between all popular TNCs and VHF/HF transceivers. No soldering is required. It can be easily programmed by the user for 8 PIN microphone connectors. **HRO Price $34.95**

POWER SUPPLIES

ASTRON CORPORATION



Astron's solid-state electronically regulated **Power Supplies** have fold-back current limiting to protect from excessive current. Heavy duty heat sink. Output voltage: 13.8 VDC ±.05 volts. 220 V power supplies available on special order at slightly higher price.

RS-A Series Standard power supply with on / off switch. Voltage may be adjusted internally.

RS-M Series Power supply with front meters. One is for voltage and the other current.

VS-M Series Power supply with separate volt and amp meters. Adjustable output voltage from 2-15 volts.

RM Series 19" x 5 1/4" rack-mount power supplies available with or without meters and may be variable. The newest is the RM-60 with and without meters.

SL Series Slim Line series for a low profile installation.

KENWOOD

Kenwood's four power supplies go with their HF, VHF and UHF radios. All power supplies are 110 VAC only and some are UL approved. The **PS-31** is designed to go with the TS-790A. The **PS-33** and the **PS-53** are especially for the TS-450S and TS-690S. The **PS-52** is Kenwood's largest. It is designed for the TS-850 but it will run all Kenwood 12 VDC radios. **Watch for the NEW Kenwood Switching Power Supply available soon!**

ICOM

Icom has two external power supplies to use with their 12 VDC-powered radios. The **PS-55** is a standard duty supply with a cabinet styling to match IC-735 / 728 / 729. The heavy-duty **PS-30** station supply can operate several base station units. The **PS-35** is an internal suppply designed to be installed in the IC-751 or selected VHF / UHF base transceivers.

YAESU

Yaesu has two power supplies designed primarily to be used with their HF radios. The **FP-757HD** is a heavy-duty supply with a built-in speaker and cabinet styling to match the FT-757GX. The **FP-800** is designed to match the FT-890 and also contains a built-in speaker.

Power Supplies

Manufacturer	Model	Cont.Duty 13.8 VDC	Intermit Duty	Height in	Width in	Depth in	Weight lbs	List Price Call for HRO Discount Price
Astron	RS-4A	3 A	4 A	3.75	6.5	9	5	$51.95
	RS-7A	5 A	7 A	3.75	6.5	9	9	$68.95
	RS-10A	7.5 A	10 A	4	7.5	10.75	11	$84.95
	RS-12A	9 A	12 A	4.5	8	9	13	$99.95
	RS-20A	16 A	20 A	5	9	10.5	18	$121.95
	RS-35A	25 A	35 A	5	11	11	27	$197.95
	RS-50A	37 A	50 A	6	13.75	11	46	$285.95
	RS-70A	57 A	70 A	6	13.75	13.75	48	$339.95
	RS-12M	9 A	12 A	4.5	8	9	13	$159.95
	RS-20M	16 A	20 A	5	9	10.5	18	$144.95
	RS-35M	25 A	35 A	5	11	11	27	$204.95
	RS-50M	37 A	50 A	6	13.75	11	46	$314.95
	RS-70M	57 A	70 A	6	13.75	12.12	48	$372.95
	RM-35A	25 A	35 A	5.25	19	12.5	38	$309.95
	RM-50A	37 A	50 A	5.25	19	12.5	50	$326.95
	RM-60A	50 A	55 A	7	19	12.5	63	$422.95
	RM-35M	25 A	35 A	5.25	19	12.5	38	$318.95
	RM-50M	37 A	50 A	5.25	19	12.5	50	$354.95
	RM-60M	50 A	55 A	7	19	12.5	63	$467.95
	VS-20M	16 A	20 A	5	9	10.5	20	$170.95
	VS-35M	25 A	35 A	5	11	11	29	$238.95
	VS-50M	37 A	50 A	6	13.75	11	46	$330.95
	SL-11A	7 A	11 A	2.75	7.62	9.95	11	$90.95
	SL-15R	12 A	15 A	2.75	7.62	9.95	14	$119.95
ICOM	PS-30	20 A	25 A	4.3	9.5	11.8	15.6	$470.95
	PS-35	17 A	20 A	*	*	*	6	$239.95
	PS-55	15 A	20 A	4.2	7.2	10.5	17.5	$345.95
Kenwood	PS-31	20 A	22.5 A	4.7	6.9	12.2	17.4	$219.95
	PS-33	20.5 A	22.5 A	6.81	3.78	11.66	15.4	$239.95
	PS-52	22.5 A	22.5 A	4.25	7	12.25	16	$289.95
	PS-53	22.5 A	22.5 A	6.81	3.78	11.66	15.2	$269.95
Yaesu	FP757HD	15 A	20 A	3.7	9.5	9.3	3.2	$334.95
	FP-800	20A	20A	3.66	9.4	9.3	15	$309.95

*Internal Supply (220 volt versions of some models available at additional cost by special order. Contact HRO for details.)

PERIPHEX

Replacement Batteries

Periphex makes a collection of Replacement Battery Packs for all the popular handheld radios. HRO now stocks these packs to provide you superior battery performance at an affordable price.

The Super models offer additional operating time when compared to manufacturer provided batteries. Depending on the battery model and radio, an additional 15% to 100% operating time can be achieved.

Examine the tables below and select the pack which best suits your needs.

Most Alinco Radios

Model	Volts (DC)	Capacity (mah)	HRO Price
EBP-22S	12	800	$65.95
EBP-24S	7.2	1500	$62.95

Most Icom Radios

Model	Volts (DC)	Capacity (mah)	HRO Price
BP-7S	13.2	1200	$65.95
BP-8S	9.6	1200	$65.95
BP-83S	7.2	750	$43.95
BP-84S	7.2	1400	$63.95
BP-85S	12	800	$76.95

Most Kenwood Radios

Model	Volts (DC)	Capacity (mah)	HRO Price
PB-7S	7.2	1400	$59.95
PB-8S	12	800	$59.95
PB-13S	7.2	1200	$49.95
PB-14S	12	400	$60.95
PB-17	12	800	$49.95
PB-18	7.2	1400	$49.25
PB-33	6	1200	$49.00
PB-34	9	600	$54.00

Most Yaesu Radios

Model	Volts (DC)	Capacity (mah)	HRO Price
FNB-12	12	600	$54.95
FNB14S	7.2	1400	$59.95
FNB-26S	7.2	1400	$65.95
FBN-27S	12	800	$65.95
FNB-33	4.8	1400	$53.25
FNB-35	7.2	600	TBA
FNB-38	9.6	650	$66.90

HANDHELD BATTERY PACKS

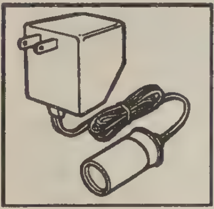
INNOVA

Portable Power for Serious HT Users

6.5AH DC PowerPack

Innova's DC PowerPack provides DC power to run most HTs up to 15 times longer than replacement nicad packs. The sealed lead acid battery is rechargeable up to 1,000 times and delivers a full 6.5 amp hours of 12 VDC power to boost HTs to their maximum rated output.

The unit uses a standard cigarette lighter socket so all you need is your HT and its dedicated DC adapter. The DC PowerPack can easily run any other 12 VDC accessory up to 10 amps. It comes complete with a built-in handle and shoulder strap, overcharge protection, DC charger for charging in a vehicle and LEDs that monitor the battery status. HRO Model **"Power Pack"** **HRO Price $69.95**



AC Charger

Recharges the 6.5 AH DC PowerPack at home in 8 to 10 hours. HRO Model **"AC CHGR"** **HRO Price $14.95**

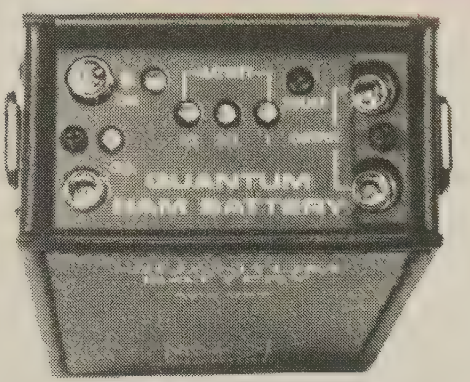
3.0AH DC Powerpack

This model is a smaller, more compact DC PowerPack that provides a full 3 amp hours of 12 VDC power. It has a sealed lead acid battery that is rechargeable up to 1,000 times. It can boost most HTs to their maximum rated output while lasting up to seven times longer than replacement nicad packs.

The unit comes with a convenient shoulder strap, AC charger for recharging at home, 10 amp fuse protection, and a standard cigarette lighter socket output for powering HTs (dedicated DC adapter required) or any other 12 VDC accessory. HRO Model **"Power Pack Small"** **HRO Price $59.95**

Internet
On-line Ordering
24 Hours per Day
http://www.hamradio.com

QUANTUM INSTRUMENTS



All-day Power For Your Handheld!

The Quantum Ham Battery (model QHB) can power most models of handi-talkies 3 to 5 times longer than nicad packs. The battery delivers 12 volts for a 5 W output from most HT's.

The Quantum Ham Battery is modular and adaptable to many types of equipment. The power pack contains the rechargeable battery and electronics. Adapters with coiled cords connect the high performance power pack to an HT or other equipment.

One Ham Battery can be used for different equipment by switching adapters. This feature means a user need purchase only a new adapter when upgrading or changing to another HT instead of purchasing a whole new battery and chargers.

The Ham Battery is housed in a compact leatherlike case which can be belt-attached or hooked to a shoulder strap. Inside is a powerful 2.1 amp hour, high rate 12 volt rechargeable battery. The cells are sealed lead types. These can be recharged fully and reliably to 100% capacity at all times. The three-LED "fuel gauge" lets you know how much of the battery charge remains.

Included with the Ham Battery are a built-in automatic circuit breaker, recharge indicator and regulator. A charger is supplied with the battery. There are two output sockets for powering two pieces of equipment at once. **HRO Discount Price 129.95**

Quantum Battery Adapters and Accessories

Model	Description	HRO Price
HB3	Icom "S" Series, IC-24AT, W2A, IC-2SRA, IC-4SRA, IC-R1.	$35.95
HB4	Icom "A" & "G" series except IC-24AT.	$35.95
HB5	Kenwood TH-205AT, 215A, 225A, 315A, 415A.	$35.95
HB6	Kenwood TH-25, 26AT, 45AT, 46AT, 75A, 77A.	$32.95
HB7	Yaesu FT-103R, 109R, 203R, 209R/RH, 703R, 709R, 727R.	$35.95
HB9	Yaesu FT-23R, 33R, 411, 470, 73R, 811, 911.	$35.95
HB10	Vehicle socket adapter.	$24.95
HB11	Alinco DJ-160, 460, 560T/E.	$45.95
HB13	Icom P Series IC-P2 / 3 / 4AT.	$45.95
HB16	Kenwood TH-27 / 28 / 47 / 48A /78A, Yaesu FT-416 / 816.	$45.95
HB19	Yaesu FT-26/ 76/ 415/ 815/ 530.	$45.95
HB20	DC Plug Set.	$28.95
HB21	Alinco DJ-F1T, DJ-F1T-HP.	$45.95
HB31	Alinco DJ-580T / DJ-180T.	$45.95
HB36	Vehicle fast charger.	$81.95
RA17	AC adapter for HB36.	$39.95
HB0	Coiled power cord for QHB.	$21.95
HB40	Quantum shoulder strap.	$14.95
HBCA-4	Standard C228 / 528 / 628A.	$45.95
HBCA-5	Standard C168 / 468A.	$45.95

SWR & WATT METERS

BIRD

Model 43 Directional Wattmeter

The low-cost Model 43 Thruline Directional Wattmeter has an unequaled history of reliability, durability and flexibility. It is a thoroughly engineered, portable, insertion-type instrument that measures both forward and reflected CW power in coaxial transmission lines. It gives accurate RF power flow readings under any load conditions.

Model 43 is comprised of a line section and a direct-reading 3 scale meter housed in a rugged, corrosion-resistant aluminum case. Quick Change (QC) type connectors and a full range of plug-in measuring elements are available. (See the chart for the most popular elements. Others are available on special order.) Two extra elements can be stored in the housing, one on each side.

The shock-mounted 30-microampere meter has 3 expanded scales of 25, 50 and 100 unit calibrations. It normally comes with type SO-239 QC connectors installed. Other popular connectors are available. Please specify at time of purchase.

PEP Modification Kit
Model 4300-400

Your existing Bird 43 meter can be upgraded to a PEP reading meter. Order the 4300-400 modification kit. It is easy to install—procedures are included for most versions of the Model 43.

Accessories

The most popular wattmeter accessories are:

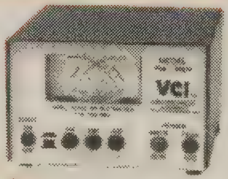
- CC-1 Meter case.
  Space for up to 6 elements.
- EC-1 Element case.
  Space for up to 12 elements.

Model 43P Peak Reading Wattmeter

The Model 43P is a peak-reading version of the popular Model 43. The peak reading option has been installed in one of the spare element holes on the side of the meter.

The meter reads CW with the switch out and PEP when the switch is pushed in. Requires a 9 VDC battery. The frequency range and power levels are determined by the element used. No special elements are required. The meter comes with SO-239 QC connectors installed. Others are available.

SWR / Power Meter



Valor

VECTRONICS

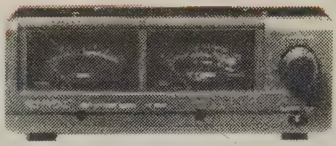
Vectronics has two cross needle meters that permit simultaneous monitoring of power and SWR. The PM-30 has 30 and 3000 watt ranges and a frequency range of 1.8-30 MHz. The PM-30UV covers 100-500 MHz with 30 and 300 watt ranges. **HRO Prices PM-30 $99.95;**

Bird Standard Elements

Power	2-30 MHz	25-60 MHz	50-125 MHz	100-250 MHz	200-500 MHz	400-1000 MHz
5 watts		5A	5B	5C	5D	5E
10 watts		10A	10B	10C	10D	10E
25 watts		25A	25B	25C	25D	25E
50 watts	50H	50A	50B	50C	50D	50E
100 watts	100H	100A	100B	100C	100D	100E
250 watts	250H	250A	250B	250C	250D	250E
500 watts	500H	500A	500B	500C	500D	500E
1000 watts	1000H	1000A	1000B	1000C	1000D	1000E
2500 watts	2500H		2500B	2500C		
5000 watts	5000H					
10000 watts	10000H					

SWR / Power Meters

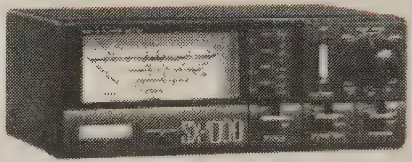
KENWOOD



SW-2100

The SW-2100 SWR/wattmeter features dual meters for monitoring of SWR and forward power. There are two ranges 0-200 W and 0-2000 W with a frequency range of 1.8 - 30 MHz. **Suggested List Price $164.95**

DIAMOND



The Diamond RF SWR / wattmeters cover the complete range of amateur applications. The SX meters have the following features:

- Illuminated meters. Require 12 volts DC.
- Low insertion loss generally less than 0.2 dB in HF range and 0.3 dB at higher frequencies.
- Power measurement accuracy is generally ±10% on the higher power ranges and ±5% on lower ranges.
- Some have remote sensors for power pick-up.
- Low loss SO-239 connectors are used except for the high frequencies as noted in the table.
- Measurements are forward power, reflected power, SWR &, on selected frequencies, PEP monitor.

Model	Freq MHz	Power Ranges	Connectors	HRO Price
SX-100	1.6-60	30/300/3KW	SO-239	$149.95
SX-200	1.8-200	5/20/200	SO-239	$109.95
SX-400	140-525	5/20/200	SO-239	$129.95
SX-600	1.8-160 140-525	5/20/200	SO-239	$199.95
SX-1000	1.8-160 430-450 800-930 1230-1300	5/20/200	SO-239 N N N	$249.95
SX-9000	4 Band Automatic See SX-1000	5/20/200	Same as SX-1000	CALL

DAIWA

Model	Description	HRO Price
NS-660A	1.8 - 150 MHz	$199.95
CN-410M	3.5 - 150 MHz	$99.95
CN-465M	140 - 450 MHz	$99.95
NS-663BM/BN	144 - 525 MHz	$199.95
DP-810	1.8 - 150 MHz	$249.95
DP-820N	140 - 525 MHz	$279.95

Frequency Counters

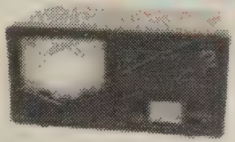
Startek
International

Startek's ATH™ series brings you auto trigger and hold in a pocket sized frequency counter. Super fast circuitry reads and holds a signal in less than one-tenth of a second.

Model	Description	HRO Price
ATH10	1-1200 MH w/Auto trigger	$149.95
ATH15	1-1500 MHz, High speed	$189.95
ATH30	1-2800 MHz, High speed w/ ATH built in	$249.95
ATH50	ATH-30 plus Hi-Z input 5 Hz to 48 MHz	$289.95
1350	1-1300 MHz, 3 gate times	$119.95
3500	10 Hz-3500 MHz, wide frequency range	$219.95

SWR Meters

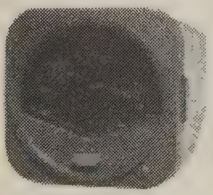
DAIWA



CN-101

Features:
- Large cross needle meter
- Forward / reverse read simultaneously
- PEP monitor function

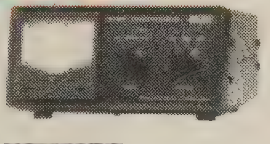
	CN-101
Frequency	1.8 - 150 MHz
Power Range	15/150/1.5 KW
Power Rating	1.5 KW(1.8-60MHz) 1 KW (144 MHz)
SWR Detection	4 W minimum
HRO Price	$89.95



CN-460M

Features:
- Compact
- Cross Needle Meter
- Mobile / Base Use

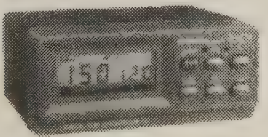
	CN-460M
Frequency	140 - 450MHz
Power Range	15/150 W
Power Rating	150W
SWR Detection	3W minimum
HRO Prices	$99.95



NS-660PA

Features:
- Cross needle meter
- PEP and RMS readings
- Remote sensors available

	NS-660PA
Frequency	1.8 - 150 MHz
Power Range	30/300/3 KW
Power Rating	3. KW
SWR Detection	8W minimum
HRO Price	$199.95



DP-800 Series

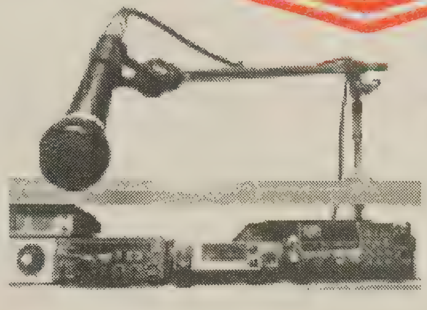
Features:
- Large LCD display
- RMS and PEP readings
- Bargraph display
- Audible Beeps

	DP-830
Frequency	1.8 - 150 MHz 140-525 MHz
Power Range	0 - 1.5 kw 0 - 150 MHz
Power Rating	1.5 KW 150 W
Sugg. List	$385.95

Microphones

HEIL SOUND

HM-10 Series



By carefully selecting the correct hardware, you can design the EXACT audio set up you need for your station. With the new hardware from Heil, you can clamp it, screw it, bolt it, or hold the great new Heil microphone, the **HM-10.** The components are shown below. They are available pre-wired for Kenwood, Yaesu and Icom. Please specify your radio.

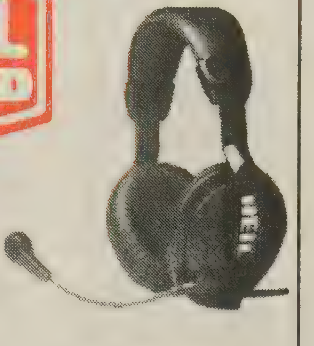
Model	Description	Sugg. List
HM-10 (4)	Mike with case and HC-4 element	$85.95
HM-10 (5)	Mike with case and HC-5 element	$85.95
HM-10 Dual	Mike with both HC-4 and HC-5	$131.95
MA-1	Adjustable Boom	$49.95
FS-1	Foot Switch	$24.95
TB-1	Table Base Mount	$12.95

Microphone Elements

HC-4 / HC-5

Heil Sound has two replacement microphone elements designed for amateurs. The **HC-4** was designed for serious DX and contest operators. With a 10 dB peak at 2,000 Hz and the low rolled off sharply at 500 Hz, this is best for getting through the pile ups. The **HC-5** has higher fidelity and is the recommended element for the Icom SM-5/6. The output level matches that required for the Kenwood and Yaesu HF radios.

HRO Prices: HC-4 $28.95; HC-5 $28.95



Pro Headsets

Heil's headsets for the amateur provide comfort and performance. Available for use with Icom, Kenwood and Yaesu. Contact HRO for specifications. Connecting cables optional for Icom, Kenwood and Yaesu.

Pro Set The first in the Pro-Series Boom Headsets, the Pro Set provides superior comfort and quality.
Suggested List $135.95
HRO Price $119.95

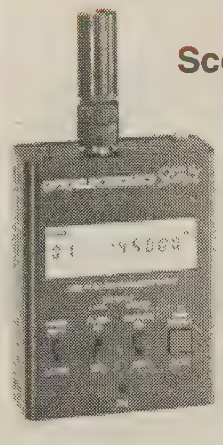
Pro Micro Heil's newest addition to the Pro Series is the Pro Micro. It's virtually a miniature version of the Pro Set and takes the place of the old BM-10 Series boom headset. Created for long-term comfort and superior performance, it doesn't cover the entire ear like the Pro Set–a feature requested by some Hams.
HRO Price $99.95

Pro 5 The Pro 5 is a single side version of the Pro Set. Some Hams have requested a single side Boom Set so they can keep one ear open for room or multiple transceiver monitoring.
HRO Price $109.95

Many manufacturers offer coupons or promotions. Check our Web page at http://www.hamradio.com for the latest manufacturer promotions.

OPTOELECTRONICS

Frequency Recorder



Scout

The Scout frequency recorder is a revolutionary device which can automatically record up to 400 unique frequencies from 10MHz to 1.4GHz in the nearfield. The unit also features the new Reaction Tune™ function which allows the Scout to tune any CI-V equipped receiver such as the Icom 7000, 7100, and 9000, and the AOR 8000 and 2700 units. The Scout includes a 9 digit LCD display with full annunciators, 16 segment signal strength bargraph, EL backlight, beeper, vibrator, non volatile memory, 10 hour rapid charge built in NiCad batteries, AC adapter, and utility software disk for downloading memory into a PC, using the optional CX12AR converter.

The Scout is the ultimate scanning accessory. Its unique record and recall ability makes it a remarkable frequency monitoring device. The Scout's double beep will alert you when a new frequency is recorded and a single beep indicates an already recorded frequency has been hit again. For covert applications in vibrate mode, the Scout will alert you when a frequency has been recorded.

- Records and saves 400 frequencies.
- Records up to 255 hits on each frequency.
- 10 Mhz - 1.4 Ghz single frequency range.
- Download frequencies to a PC with optional CX12AR.
- Sleep mode: all frequencies are saved.
- Distinctive beeps indicate frequency hits.
- Pager-style vibrator for discreet recording.
- 10 hour battery discharge.
- AC charger supplied.

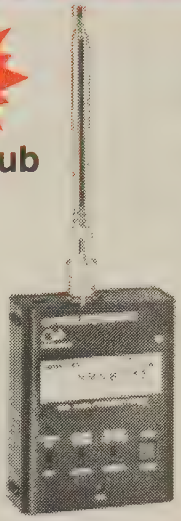
OPTIONS

• AC100 adapter 45 minute rapid recharge	$39.00
• Scout Spectrum CD-ROM / FCC database	$39.00
• DB32 VHF / UHF antenna	$29.00
• CX12AR computer interface	$99.00
• CC30 carry case	$15.00
Scout ... HRO Price	$399.00

Frequency Counters

NEW!

Cub



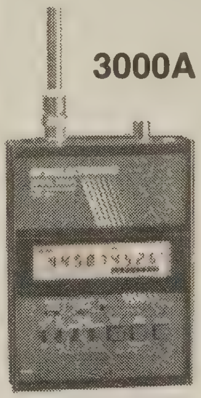
Introducing the newest addition to the Optoelectronics line: the Cub frequency counter.

- 10 digit LCD display.
- Extended battery life.
- Auto filter and auto capture. (pat. pend.)
- 10 MHz-2.8 GHz.
- 1Mhz - 250 Mhz direct count capability for high resolution.

OPTIONS

• TA100S telescoping ship antenna	$12.00
• CC30 Carry Case	$15.00
Cub ... HRO Price	$149.00

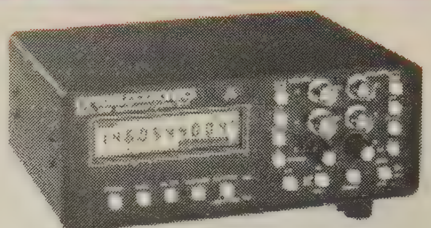
3000A Plus



- Digital auto capture.
- Dual impedance inputs.
- 10 digit LCD display.
- Digital auto filter and capture.
- Built-in 800 Mhz high pass filter.
- Built-in RS232 serial interface.
- Period, ratio, time interval and frequency measurement.
- Full range 109 Hz-3 GHz.
- Ultra sensitive RF signal strength bargraph.
- 5-6 hour battery operation.

OPTIONS

• TA100S	$12.00
• OPTOLOG Software	$25.00
• CB232	$39.00
• .2ppm TCXO Timebase	$100.00
3000A Plus ... HRO Price	$349.00



8040

The 8040 is full-featured multi-function counter in a compact, bench / portable design.

- Full function: frequency, period, ratio, time interval and average.
- Digital filtering and auto capture.
- Optimized sensitivity for maximum RF pick up distance.
- Dual 50 ohm and 1Meg ohm input amplifiers with AC/DC coupling, ± polarity, trigger level adjustable, low pass filter, and attenuator.
- Internal clock output; External clock input.
- Built-in RS232.
- 10-digit LCD display with 16-segment signal strength bargraph.
- El backlighting.

OPTIONS

• TCXO +/- 0.1 ppm Timebase	$135.00
• OCXO +/- 0.05ppm Timebase	$240.00
• NiCad90 Internal NiCads	$130.00
8040 ... HRO Price	$670.00

M1

- Digital auto filter and capture. (pat. pend.)
- Arm store recalls frequencies from a three-register stack.
- Low power consumption 4-5 hour operation.
- 10 - 2.8 Ghz frequency range.
- 10 digit LCD display with backlight.
- 16 segment signal strength bargraph.
- High speed 250 Mhz direct count.
- Dual 50 ohm / Meg ohm inputs.
- Digital communications port permits data logging with model CX12AR.

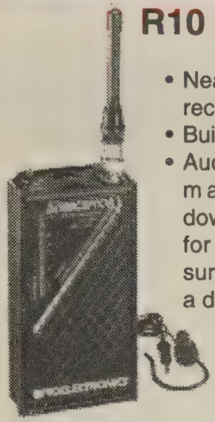
OPTIONS

• TA100s telescoping whip antenna	$12.00
• CX12AR computer interface	$99.00
• Optolog datalogging software	$25.00
M1 ... HRO Price	$249.00

ACCESSORIES

Interceptors

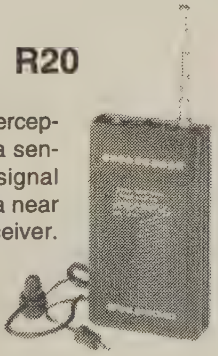
R10



- Near field test receiver.
- Built in speaker.
- Audio output is maintained down to 50Hz for tone measurements with a decoder.
- Thumb wheel volume and squelch control.
- Skip button frees the R10 to lock on to a different signal.
- For test applications, demodulated audio output is available from a stereo jack.
- Dual 10 segment bargraphs provide deviation and signal strength.
- Lock indicator to indicate signal interception.
- Low battery indicator.
- Supplied with telescoping whip antenna, AC wall adapter, and NiCad batteries.
- 30 Mhz -2 Ghz frequency range.

R10 .... HRO Price $299.00

R20

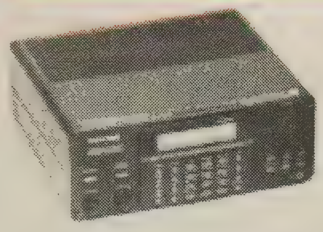


The R20 Interceptor is both a sensitive RF signal meter and a near field AM receiver.

- Aircraft communications monitoring.
- Pocket sized with built-in telescoping whip antenna.
- Check microwave oven leakage.
- Wide .5 MHz-2.5 GHz range.
- Locate stuck transmitters.
- 10 segment LED bargraph.

R20 .... HRO Price $109.00

Computer Interfaces



OS456 & OS535

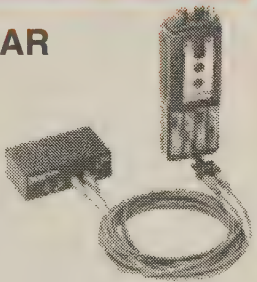
The OS456 & OS535 not only tune your receiver but also allow for increased scanning speed. Both models are supported by ScanStar, ScanCat, Probe, Radio Manager for Windows, Scanner Wear for Windows, and Wave for Mac.

	OS456	**OS535**
• Computer control scanning	Yes	Yes
• Decodes CTCSS, DCS & DTMF	Yes	Yes
• Easy installation	Yes	Yes
• Built in CIV converter jacks	Yes	Yes
• Unlimited memory banks	Yes	Yes
• Import files from Spectrum CD into Probe, Scanner Wear, & ScanCat software packages	Yes	Yes
• Fastest scanning system available	Yes	Yes
• Works with Radio Shack Pro 2005 and 2006	Yes	--
• Works with Radio Shack Pro 2035	--	Yes

OS456 .... HRO Price $299.00
OS535 .... HRO Price $200.00

Converter

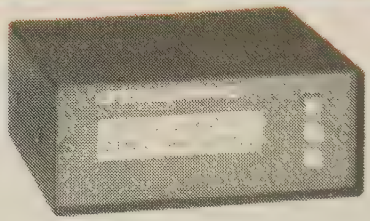
CX12AR



The CX12AR converts TTL serial interface levels to RS232 levels compatible with most personal computers. Provides computer control for Icom R7000, R7100 and the AOR AR8000. Download Scout frequencies in memory to a PC. Software controlled relay for tape recorder. Dedicated squelch status input for AOR 8000 and Icom R7000. Switch selectable between full duplex and CI-V. Includes 9VDC wall transformer, 6' serial cable, and stereo phone cable.

CX12AR .... HRO Price $99.00

All-Mode Decoder



DC440

- Simultaneous off-the-air measurement of 50 CTCSS tones, 106 DCS codes, and 16 DTMF characters.
- Six measurement modes for maximum flexibility.
- Scrollable ten-character display of up to 127 stored DTMF characters.
- Convenient front panel controls for power, mode, and recall.
- CIV capable, interface with Icom R7000, R7100, and R9000.
- Unique "On the Air" display when squelch breaks but no tone or code usage.
- Decoding activity indicator.
- Compact size ideal for mobile or portable operation with optional NiCad battery.
- Exceptional 2-line by 10-character back-lit LCD display for optimal direct sunlight and low-light viewing.

OPTION

NICAD44 .... $39.00
DC440 .... HRO Price $249.00

Accessories

ANTENNAS

TA100S:	Whip antenna 100-600 MHz	$12.00
RD27:	27 MHz Rubber duck antenna	$29.00
RD150:	150 Mhz Rubber duck antenna	$19.00
RD440:	440 Mhz Rubber duck antenna	$19.00
RD800:	800 Mhz Rubber duck antenna	$35.00
DB32:	VHF / UHF Mini antenna	$29.00

FILTERS

CF802:	825-845 MHz filter 10 dB gain	$149.00
N100:	FM Broadcast notch filter	$99.00

PROBES

P30:	1X/10X Counter Scope Probe	$30.00
P101:	Low Pass Audio Probe	$20.00

CARRY CASES

CC12:	Use with CUB	$12.00
CC30:	Use with CUB, M1, 3000A+, Scout, R10	$15.00
CC50:	Use with OS456, OS535	$39.00

SOFTWARE

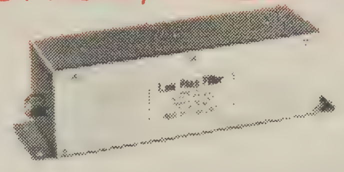
Spectrum CD:	FCC Database	$39.00
Optolog:	Logging Software for M1, 3000A, 8040	$25.00

NOISE FILTERS

High / Low Pass Filters

BENCHER, INC.

Made in USA



YA-1

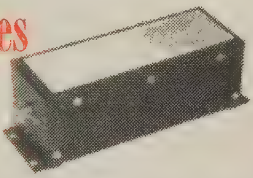
Bencher's low-pass filter has exceptional specifications. Working range: 1.8-29 MHz. Impedance: 50 ohms. Power rating: 1.5 KW continuous, 5 KW peak. Attenuation: at least 80 dB at 54 MHz. **HRO Price $49.95**

B&W

B&W manufacturers two low-pass filters. Each has a different power handling capability. Attenuation is 60 dB at 54 MHz.

Model	Power	Cut-Off	Price
FL-10 / 100	100 watts	30 MHz	$79.95
FL-10 / 1500	1500 watts	30 MHz	$79.95

Oak Bay Technologies



LP-11P Low Pass Filter

The LP-11P is a commercial quality low-pass filter. It operates from 1.8-30 MHz with an 11 pole inverse Chebishev design. The upper cutoff frequency is 41 MHz with 80 db attenuation by 51 MHz. Maximum power is 1000 watts. **HRO Price $69.95**

Valor VECTRONICS

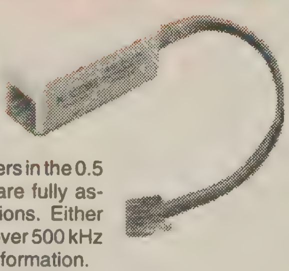
High & Low Pass Filters

Vectronics high pass and low pass filters assist you in using your amplifiers.

Model		HRO Price
HPF-1	High Pass TV	$19.95
LP30	1500 W Low Pass	$69.95
LP2500	2.5 kW Low Pass	$129.95

Telephone Filters

K-COM



Telephone Interference Filters

Stop telephone RFI from transmitters in the 0.5 to 30 MHz range. These filters are fully assembled and come with instructions. Either model can be special ordered to cover 500 kHz to 3.0 MHz. Call for pricing and information.

Model RF-1 Single Line Filter for phones, answering machine, modems, fax and cordless phones. RJ-11 modular connectors. Can be special ordered for two-line phones. **HRO Price $16.95**

Model RF-2 For inserting RFI filtering into telephone wiring: inside phone jacks, behind wall-mounted phones, etc. Solder-less connectors. **HRO Price $10.95**

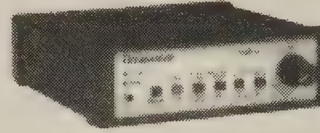
Signal Processors

Timewave Technology Inc.

DSP-59+ Digital Signal Processor

The DSP-59 reduces noise and interference to improve radio reception. Digital signal processing technology provides optimum filters for five base functions: 1) Random noise reduction; 2) Tone noise reduction; 3) Highpass filtering; 4) Low-pass filtering; 5) Bandpass filtering. The five functions are combined to make five switch selectable modes.

The DSP-59 is compatible with all amateur radio transceivers and receivers. Simply connect it between the radio and the speaker. Requires 12-16 VDC to operate (not provided). **HRO Price $259.95**

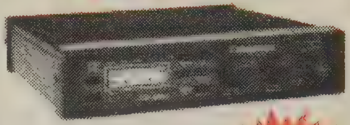


DSP-9 Digital Signal Processor

The DSP-9 reduces and filters noise and interference to improve radio reception. Its digital signal processing technology provides optimum filters for random noise reduction, heterodyne elimination, and bandpass filtering. Noise reduction function examines a characteristic of signal and noise called correlation and dynamically filters out the undesired noise. Random noise such as white noise or static is uncorrelated. Speech is moderately correlated. Pure tones are highly correlated.

Narrow band signals like CW require bandpass filters with steep skirts and linear phase response. SSB signals often have a high signal-to-noise ratio but have interference from overlaping signals. The DSP-9 supports both requirements.

The DSP-9 has convenient front panel push buttons. The correct filter combinations can be selected for CW or SSB. The DSP-9 is compatible with all amateur radio transceivers and receivers. Simply connect it between the radio and the speaker. Requires 12-16 VDC to operate (not provided). **HRO Price $169.95**



NEW!

DSP-599ZX All Mode Noise Filter

This is the most powerful noise and QRM filter in the Amateur Radio world. It combines a hyperspeed DSP processor with an alphanumeric display, easy-to-use push buttons and optical encoders to wipe out noise and QRM like never before! Continuous filter tuning up to 5.4 kHz opens up wider bandwidth modes like shortwave, AM broadcast, and VHF / UHF FM. Heterodynes disappear like magic, weak signals pop up from the noise and the razor-sharp filters slice away QRM. The DSP RTTY demodulator pulls out solid copy when you barely hear a signal.

Easily read and recall all filter settings on the backlighted alphanumeric LCD display. Test mode features a calibrated variable frequency and amplitude audio oscillator and an audio voltmeter.

Features include:
- Hyperspeed DSP - 27 ns.
- 80 kB RAM on the DSP chip.
- Front panel programming with multiple memories.
- Programmable input sensitivity and line output level.
- Audio voltmeter and generator.
- Wideband for AM and FM.
- Two selectable channels.

HRO Discount Price $339.95

DSP-9+ Noise Filter

The DSP-9+ improves radio reception by reducing noise and filtering interference. Digital signal processing technology provides optimum filters for random noise reduction, heterodyne elimination, and bandpass filtering. It reduces interference with an adapative noise filter for SSB and AM. It eliminates heterodynes with multiple automatic notch filters. Sharp speech, data and CW filters provide 1.8, 2.4 and 3.1 kHz bandpass well as 100, 200 and 500 Hz bandpass. This is perfect for RTTY, AMTOR, PACTOR, HF Packet and CW. **HRO Price $199.95**

FILTERS & ENCODERS

Audio Enhancers

NRF-7
Filter / Noise Reducer

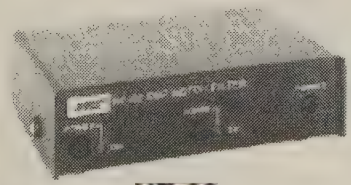
The NRF-7 provides no-delay filters for AMTOR, PACTOR and break-in CW. The filter uses state-of-the-art Digital Signal Processing (DSP) for sharp non-ringing CW and voice filters plus auto Notch and white noise reduction. It connects between the speaker output of your receiver or transceiver and an external speaker. **HRO Price $239.95**; AC Supply **HRO Price $16.95**

NIR-10
Noise & Interference Reducer

The NIR-10 with NEW REVISION 3.0 software will enhance the quality of received voice and CW when used at the audio output of a transceiver. The NIR-10 has advanced Digital Signal Processing (DSP) to recognize and improve the signal-to-noise ratio of SSB voice signals. Features are also available to enhance CW and RTTY signals. **HRO Price $349.95**; AC Supply **HRO Price $16.95**

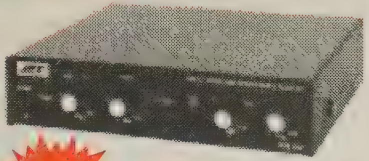
NTR-1
Wide-Band Noise / Tone Remover

The NTR-1 is a general purpose audio processing unit designed to provide noise reduction and multiple tone removal for AM / FM or other wideband signals. It provides narrow band operation for SSB, CW or data reception. It operates on the receiver audio output and contains a built-in audio amplifier. **HRO Price $169.95**



NF-60
Notch Filter

The NF-60 DSP Spectral Notch Filter automatically removes MULTIPLE heterodynes, tune-ups or CW / RTTY tones in 5 msec. The NF-60's DSP filter algorithm provides as many extremely narrow notch filters as there are tones. Connects between your transceiver or receiver speaker jack and an external speaker. **HRO Price $155.95**
AC Supply **HRO Price $16.95**



NEW!

NIR-12
Dual DSP
Noise Reduction & Filter

The most advanced noise reduction filter has dual DSPs to provide simultaneous bandpass filter, noise reduction (2 types) and multiple tone removal. Both Spectral Subtraction (NIR) and Dynamic Peaking noise reduction methods are included to eliminate impulse noise as well as white noise. An automatic NIR mode sets the noise reduction at optimum. Notch filter removes multiple heterodynes from voice signals. Super-selective linear phase FIR filters are continuously variable in both bandwidth and center frequency. Bandwidth is adjustable between 50 and 3200 Hz. Internal access to the dual DSPs provided via RS-232. Requires 12 VDC @ 1A. **HRO Discount Price $329.95**

NEW!

ANC-4
Antenna Noise Canceller

The ANC-4 eliminates local received noise before it enters the receiver. Unit installs between antenna and receiver input and includes two noise antennas: whip and wire. Phase and gain adjustments allow local noise level to be virtually eliminated so you hear what's going on beneath the noise. It is especially effective at cancelling local computer noise, electrical equipment noise, and power line noise. Automatic bypass when transmitting (up to 150W). Can be used as an active antenna. Requires 12VDC at 300 ma.
HRO Discount Price $169.95

SSTV-1
DSP Filter for SSTV

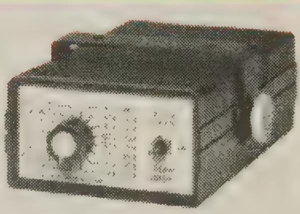
Use the SSTV-1 filter with Slow Scan TV to remove adjacent channel and in-band interference from SSTV signals. It clears noisy, distorted SSTV pictures with digital signal processing. **HRO Price $159.95**

Encoders / Decoders

COMMUNICATIONS SPECIALISTS, INC

Control your repeater or listen only to those signals that are meant just for you. Tone encoders and decoders from Communication Specialists are just the items you need.

	Encoder	Decoder	Comments	HRO Price
TS-32P	✱	✱	Universal design, CTCSS encoder / decoder capability for all FM transceivers	$57.95
SS-32PA	✱		DIP switch programmable CTCSS encoder for all FM transceivers	$28.95
SS-32SMP	✱		Micro-miniature CTCSS encoder for handhelds. Programming by solder jumpers.	$27.95
TE-64	✱		Multi-purpose CTCSS / Burst Tone encoder	$79.95



TE-32 CTCSS Encoder

The TE-32 Multi-tone CTCSS Encoder is perfect for mobile operations or the test bench. It is powered by an 11 to 25 vdc unregulated source. It has a three position range switch and a frequency accuracy ±0.1 Hz maximum over the temperature operating range. The TE-32 is low impedance (1K), low distortion, with adjustable sine wave output, 5 V peak to peak. **HRO Price $79.95**

VHF Filter

DIGITAL COMMUNICATIONS INC.

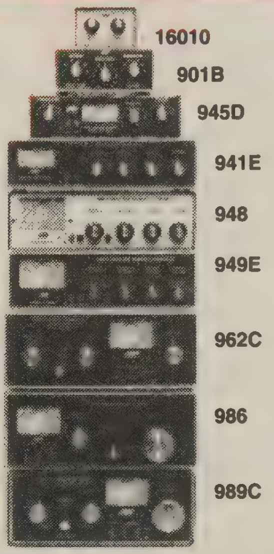
DCI-146-4H
Two Meter Bandpass Filter

Simply connect the DC1-146-4H intermod filter between your 2 m rig and antenna, then sit back and relax. Enjoy the experience of monitoring your favorite repeater in peace, without listening to the squawks and squeals of intermod. Size 12"X3"X5". UHF connectors.

The DC1-146-4H is a first class filter with first class specifications. It reduces the strength of interfering signals while allowing the signals you want to hear to pass through at virtually full strength. It is a worthwhile addition to any mobile or base station. **HRO Price $89.95**

MFJ

HF Tuners



MFJ-16010 Random Wire Tuner for all bands anywhere. 1.8-30 MHz. Turn any random wire into a transmitting antenna. Also for apartment, motel, camping. 200 watts. *HRO Price $39.95*

MFJ-901B Versa Tuner is our smallest, most affordable 200 watt tuner. Good for matching solid state rigs to linears when space and budget are limited. 1.8-30 MHz, 4:1 balun. *HRO Price $59.95*

MFJ-945D Mobile Tuner Take along this mobile tuner and have an uninterrupted trip. It extends antenna bandwidth and eliminates the need to stop, go outside and readjust your mobile whip. Cross-needle meter allows hands-free operation. Handles 300 watts. It reads forward / reflected power in 50 / 300 and 5 / 50 watt ranges. Has on / off lamp switch. Efficient air wound inductor gives you lower losses and more watts out. 1000 volt capacitors. Covers 1.8-30 MHz. *HRO Price $89.95*

MFJ-941E Versa Tuner II A 300 watt antenna tuner covers 1.8-30 MHz, and you get a lighted cross-needle meter with on / off switch. *HRO Price $99.95*

MFJ-948 like the 949E but without dummy load. Eggshell white. *HRO Price $119.95*

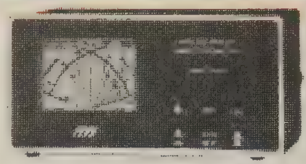
MFJ-949E Deluxe Versa Tuner II covers 1.8-30 MHz and handles 300 watts. Has built-in 50 ohm dummy load. Lighted peak reading cross-needle SWR / wattmeter. Reads forward / reflected power in 50 / 300 & 5 / 30 watt ranges. Front panel antenna switch selects 2 coax lines direct or through tuner, random wire / balanced line or dummy load. Efficient 12-position airwound inductor gives lower losses and more power out. Has 4:1 balun, 1000 volt capacitors. A black aluminum front panel matches your rig perfectly. *HRO Price $139.95*

MFJ-962C Versa Tuner III for 1.8-30 MHz handles 1.5 kW PEP. Matches coax, random wire, or balanced line (built-in 4:1 balun). Six position antenna switch for 2 coax lines. *HRO Price $219.95*

MFJ-986 Differential-T Tuner™ for 1.8-30 MHz, at 3 kW PEP. T-network with roller inductor and differential capacitor. Peak reading cross-needle SWR / wattmeter for 200 / 50 and 2000 / 500 watt ranges. Roller inductor spinner knob, 3 digit counter. 6 position antenna switch. 4:1 balun. *HRO Price $279.95*

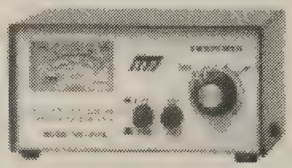
MFJ-989C Versa Tuner V heavy duty! Covers 1.8-30 MHz, 3 kW PEP, matches everything: coax fed, random wires and balanced lines. Roller inductor with spinner knob and 3-digit counter. Peak reading cross-needle SWR / wattmeter 200 / 2000 watt ranges. 50 ohm, 300 watt dummy load, 4:1 balun, 6 position antenna switch, tilt flip stand. *HRO Price $329.95*

Wattmeters



MFJ-815B Deluxe Peak Reading SWR / Wattmeter covers 1.8-60 MHz. Illuminated cross-needle meter shows peak or average forward / reflected power and SWR at a glance. Two ranges: 200 / 2000 watts. Meter light requires 12 VDC. *HRO Price $69.95*

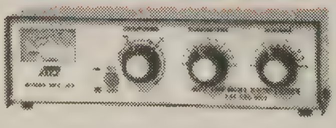
MFJ-817 144 and 440 MHz SWR / Wattmeter shows peak or average forward and reflected power and SWR at a glance. Two power ranges (200 / 20 forward and 50 / 5 reflected). Push button to select range, meter lamp, and peak or average power. Lamp uses 12 VDC or option 100 VAC MFJ-1312. *HRO Price $79.95*



MFJ-812B VHF SWR / Wattmeter for 2 meters and 220 MHz. Reads SWR forward and reflected power on 30 and 300 watt scales; SWR from 14 MHz through 220 MHz and relative field strength from 1 to 220 MHz. *HRO Price $29.95*

MFJ-864 HF / VHF / UHF (1.8-60MHz, 144 / 440MHz) Cross-needle SWR / Wattmeter. Read forward and reflected power and SWR simultaneously. Has separate HF and VHF / UHF directional couplers with SO-239 connectors. Power ranges 30 / 300 forward and 6/60 reflected. *HRO Price $59.95*
MFJ-862 VHF / UHF SWR / Wattmeters. Same as MFJ-864 but covers 144 / 220 / 440 MHz. *HRO Price $39.95.*
MFJ-860 HF SWR / Wattmeters. Same as MFJ-862 but covers 1.8-60 MHz. *HRO Price $39.95.*

VHF / UHF Tuners



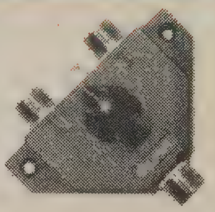
MFJ-921 Dual Band VHF Tuner covers 2 meters and 220 MHz. Convenient built-in VHF SWR / wattmeter. Handles 200 watts and matches a wide range of impedances. Excellent for mobile and base operation. SO-239 input / output connectors and wing nut post for your ground. Eggshell white and black aluminum cabinet. Comes with MFJ's one year unconditional guarantee. *HRO Price $69.95*
MFJ-924 similar to the MFJ-921 but covers only the 440 MHz band. *HRO Price $69.95*

SWR Analyzers

MFJ-259 SWR Analyzer with Resistance Meter covers 1.8-170 MHz continuously. Built-in 10 digit LCD frequency counter. Ball-bearing vernier reduction drive makes setting frequency easy and precise. Reading SWR is automatic. Plug in your antenna, set your SWR analyzer to the frequency and read the SWR. Four instruments in one: RF signal generator, 170 MHz frequency counter, SWR analyzer plus the exclusive MFJ RF Resistance Meter. You can now measure RF feedpoint resistance up to 500 ohms at minimum SWR instantly on the MFJ exclusive side-by-side RF Resistance Meter and SWR Meter. Take the quess work out of building matching networks and baluns. Handheld size. Operate with batteries or with optional AC adapter MFJ-1312B. *HRO Price $239.95*

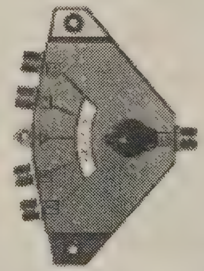
MFJ-249 like the MFJ-259 less resistance meter. *HRO Price $199.95*
MFJ-29 Carrying Pouch for MFJ-249 / 259. *HRO Price $19.95*
MFJ-29B Carrying Pouch for MFJ-259 w/window and knob control holes. *HRO Price $19.95*
MFJ-66 Dip Meter Coils for MFJ-249 / 259. Set of two coils cover 1.8 thru 170 MHz.. *HRO Price $19.95*
MFJ-201 1.5-150 MHz Dip Meter. HRO Price $119.95

Antenna Switches



MFJ-1702B Coax Antenna Switch. 2 positions plus center ground, 50 ohm. Rated to 500 MHz with 02 dB loss. Handles 2.5 kW PEP or 1 kW CW. 60 dB isolation at 300 MHz. 50 dB isolation at 450 MHz. Unused terminal grounds for static protection. *HRO Price $21.95*

MFJ-1702BN has Type N connectors, goes to 1.1 GHz. *HRO Price $31.95*



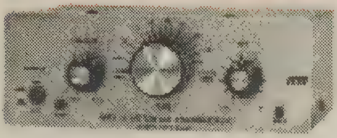
MFJ-1704 Coax Switch 4 positions plus center ground, 50 ohm. Rated to 500 MHz with 0.2 dB loss. Handles 2.5 kW PEP, 1 kW CW, 50 dB isolation at 500 MHz. Includes a replaceable lightning protection device that reduces lightning surges and static. *HRO Price $59.95*

MFJ-1704N has Type N connectors. *HRO Price $69.95*

MFJ-1701 Antenna Switch 6 positions, 50-75 ohm. Handles 2 kW PEP or 1 kW CW. 1.8-30 MHz. SO-239 connectors. Unused positions grounded. *HRO Price $34.95*

MFJ-1700B Antenna / Transceiver Switch 1-6 antennas, 1-6 rigs. Tuner, SWR meter, linear etc. in line to operate any combination. 50-75 ohms. Handles 2 kW PEP or 1 kW CW. 1.8-30 MHz. SO-239 connectors. Unused positions grounded. *HRO Price $64.95*

Transceivers



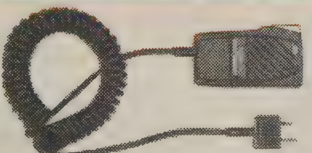
MFJ-9020 20 Meter CW Transceiver High performance superheterodyne receiver with razor sharp 8-pole crystal filter, RIT, AGC, vernier tuning, pure sinewave, side tone, speaker, headphone jack, adjustable semi-break-in, 5 watt RF. Covers lower 20 meter CW band. 6" x 6-1/2" x 2-1/4".
HRO Price $189.95
MFJ-9040 for 40 m: 7.000-7.150 MHz.
MFJ-9030 for 30 m: 10.100-10.150 MHz.
MFJ-9017 for 17 m: 18.068-18-110 MHz.
MFJ-9015 for 15 m: 21.000-21.200 MHz.
MFJ-412 plug-in Curtis chip keyer. *$39.95*
MFJ-726 plug-in audio filter. *$29.95*
MFJ-971 Portable HF tuner. *$89.95*

SSB Station

MFJ-9420X 20 Meter SSB Travel Radio™ is the smallest rig of its kind. It is a complete station, microphone, power supply and antenna and fits in you brief case. With an output of 12 watts you can work the world. With RF speech processing you focus all your power into a clear signal.
HRO Prices: MFJ-9420 $229. 95 (no mike)
MFJ 9420X $ 239.95 (special w/mike)

MFJ-9406 6 meter SSB Adventure Radio
HRO Price $229.95 (no mike)
MFJ-9406X *$239.95 (special w/mike)*
MFJ-906 6m tuner, SWR meter and bypass switch. *HRO Price $79.95*
MFJ-903 6m tuner w/o bypass. *$49.95*
MFJ-416 CW plug-in. *$39.95*

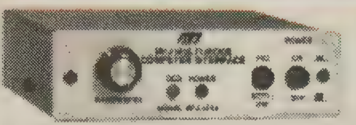
HT Speaker / Mikes



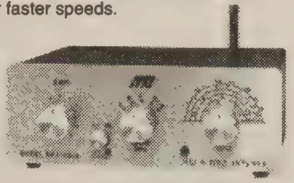
MFJ Compact Speaker Microphones Leave your HT on your belt while talking or monitoring calls. The mikes feature a lapel/pocket clip letting you place it close to the ear for easy listening. Each mike includes an electret element plus an earphone jack.
MFJ-284 fits Icom, Yaesu. *$24.95*
MFJ-286 fits Kenwood. *$24.95*

MFJ Mini Speaker / Microphone provides a mike in a miniature package for the newest HTs. Each mike is equipped with an electret element, wide range speaker, earphone jack, PTT and retractable cord. You get a swiveling lapel/pocket clip. Models with "L" provide an "L" connector for those HTs using this type. *HRO Price $24.95*
MFJ-285 fits Icom, Yaesu, & some Alinco.
MFJ-285L MFJ-285 with an "L" connector.
MFJ-285W fits Icom IC-W2A.
MFJ-287 fits Kenwood.
MFJ-287L MFJ-287 with an "L" connector.
MFJ-283 fits the dual connector Alinco.

SWL Products



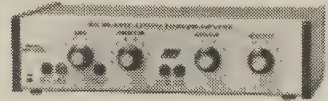
MFJ-1214PC Multimode transmits and receives WeFAX, FAX, RTTY, CW, and ASCII. Use your computer and radio to receive, display and transmit brilliant full color news photos and incredible WeFAX weather maps with all 16 gray levels. Easy-to-use menu-driven software, cables, power supply, comprehensive manual and Jump-Start™ guide. Works with VGA, EGA or Hercules IBM compatibles with 512k RAM and 8 MHz or faster speeds.
HRO Price $139.95



MFJ-1020B Indoor Active SWL Antenna. Tuned circuit minimizes intermod, improves selectivity, reduces noise outside the tuned band. Use as preselector with external antenna. 0.3 to 30 MHz. Tune, Band, Gain, ON-OFF / Bypass Controls. Telescoping whip. Use 9 V battery (not included), 9-18 VDC or 110 VAC with optional MFJ-1312. *HRO Price $79.95*

MFJ-1022 300 kHz to 200 MHz Active Antenna. Uses new noiseless feedback circuit to give you excellent low noise reception. Uses 9 V battery or 110 VAC with optional MFJ-1312B. *HRO Price $39.95*

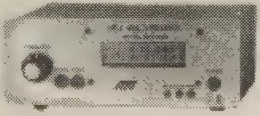
MFJ-1024 54" Outdoor Active Antenna covers 50 kHz to 30 MHz. Receives strong, clear signals, 20 dB attenuator, gain control, ON LED. Switch selects from two receivers and two antennas. Remote unit has 54 inch whip, 50 feet of coax and connector. 12 VDC or 110 VAC with optional MFJ-1312.
HRO Price $119.95



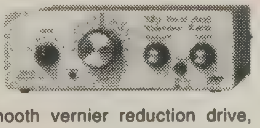
MFJ-959B Receiver Antenna Tuner / Preamplifier provides proper impedance matching so you transfer maximum signal from antenna to receiver. Covers 1.6 to 30 MHz, 20 dB preamp with gain control boosts weak stations. 20 dB attenuator prevents overload. Select from 2 antennas, 2 receivers. Uses 9-18 VDC or 110 VAC with optional MFJ-1312. *HRO Price $89.95*

MFJ-956 LW / MW / SW Preselector / Tuner Boost your favorite stations while rejecting images, intermod and other phantom signals. It greatly improves reception of signals from .15 to 30 MHz. Connects between receiver and antenna. Has tuner bypass and ground receiver positions. *HRO Price $39.95*

MFJ-1040B All Band Transceiver / Preselector lets you copy weak signals. Rejects out-of-band signals, images. 1.8-54 MHz. Up to 20 dB gain. Dual gate MOSFET, bipolar transistors for low noise, high gain. 20 dB attenuator, 2 antennas, 2 receivers. Coax and phone jacks. Bypass to 350 watts. Jack for PTT. Uses 9-18 VDC or 110 VAC with optional MFJ-1312. *HRO Price $99.95*

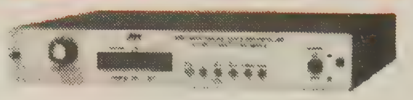


MFJ-462B copies RTTY, ASCII, CW and AMTOR signals. Plugs into shortwave receiver earphone jack and displays messages on two-line, 16 character LCD display. No computer needed. *HRO Price $169.95*



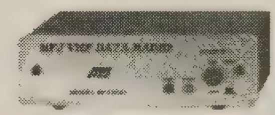
MFJ-8100 Shortware Regenerative Receiver covers 75/80/49/40/30/31/20/25/22/19/17/16/15/13 meter bands. Listen to AM, SSB, CW,WWV, RTTY and packet. Has smooth vernier reduction drive, bandswitch, volume and RF gain controls. Uses 9 volt battery. Has two headphone jacks.
MFJ-8100K Kit HRO Price $59.95
MFJ-8100W Wired and tested HRO Price $79.95

Packet / Multimode



MFJ-1278B With PACTOR built-in, the MFJ-1278B brings you state-of-the-art advances in Color SSTV, Color FAX, 16 Gray Levels, Modem, Packet, AMTOR, RTTY, ASCII, CW, FAX, SSTV, Navtex and Contest Memory Keyer. Plus 32k RAM, mailbox expandable to 128k or 512k, free AC power supply. Host Mode, KISS interface for TCP/IP and MSYS compatibility, fast through-put anti-collision technology. Independent transmit level for each radio port, random code generator, lithium battery backup, RS-232 and TTL, serial ports, socketed IC's, tune-up command, peripheral I/O port, automatic serial numbering, programmable message memories, dual radio ports (each HF or VHF), CW paddle jack. Audio amplifier and speaker jacks to monitor CW sidetone. Transmit and receive audio and packet connect bell. New fully integrated instruction manual with Fast-Start™ booklet. 1 year No Matter What™ guarantee. *Suggested List Price $299.95*
MFJ-1278BT Turbo like the 1278 but with the fast 2400 baud packet. *Suggested List $369.95*
MFJ-1278BDSP same as MFJ-1278B with DSP filter installed. *Suggested List $379.95*

MFJ-1270C Super TAPR Clone known as the most reliable TNC. Thousands used as digipeaters, nodes, BBS—many in 24-hours-per-day applications for years without a failure. VHF and HF use. Free AC power supply. WeFAX gives weather map, mailbox expandable to 128k. Upgrade to 2400 or 9600 baud. Host Mode, KISS interface. 1 year No Matter What™ guarantee. Uses 12 VDC or 110 VAC. *HRO Price $114.95*
MFJ-1270CQ 9600 baud TNC has all the features of the MFJ-1270C plus 9600 baud. *HRO Price $219.95*
MFJ-1276 all the features of the MFJ-1270C plus Pactor and 20 LED tuning indicator. *HRO Price $149.95*
MFJ-2400 baud modem for MFJ-1278 and TNC. *HRO Price $89.95*
MFJ-9600B baud G3RUH compatible modem for MFJ-1278 and TNC. *HRO Price $99.95*
MFJ-780 DSP Filter Plug In for 1278 / 1278B *$99.95*



MFJ-8621 Packet Only Data Radio. Run all data rates through 9600 baud right out of the box! Up to 5 watts output. Supplied with 145.01MHz crystal installed. Other plug in crystals available. 5-pin DIN for TNC input. Requires 12VDC.. *HRO Price $119.95*

TNC / Mike Switch

MFJ-TNC / Mike Switch Just push a button to switch between your TNC and mike! No more plugging and unplugging the mike. Pre-wired for most Kenwood, Icom and Yaesu rigs with 8-pin or modular phone jack.

MFJ-1272B / 1272M for MFJ TNC	$39.95
MFJ-1272BX / 1272MX for PK-232	$39.95
MFJ1272BYV / 1272MYV for KAM VHF	$39.95
MFJ-1272BYH / 1272MYH for KAM HF	$39.95
MFJ-1272BZ / 1272MZ for PK-88	$39.95

Packet Software

MFJ-1289 Multicom™ New 1278B software, bursting with features for IBM and compatibles: Gray level FAX, SSTV, color VGA Packet Picture, One-key Macros™, Call-Alert™, Auto-set™, Auto-router™, Packet Multiplex™, Multi-word™. RS-232 cable. *HRO Price $59.95*
MFJ-1282B Starter Pack for C64 / 128 MultiCom64™. *HRO Price $39.95*
MFJ-1287B Starter Pack for Macintosh MultiComMac™. *HRO Price $49.95*

MFJ

Windows Software

NEW!

MFJ station automation software finds DX, tunes your rig and does your logging. With a few "point and clicks" of your mouse, this powerful WINDOWS software helps you find and identify on-the-air DX you need form PacketCluster networks; search your log to see if you have worked him before; automatically set up and tune your transceiver; work him with pre-stored messages. While you are working him you can log him; print his QSL card; search and update your awards and contest files. Logview Windows™, Packet Windows™ and Rig Windows™ are powerful ham radio automation software programs that make operation fun, DXing competitive and not-so-fun detail effortless. Use them as an integrated package that unifies your transceiver, packet TNC and logging functions into a fully automated station. You can use them individually as stand alone programs and add other modules as you need them.

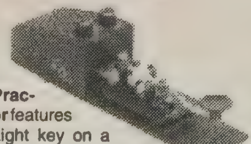
Model	Description	HRO Price
	Individual Packages	
1681	Logview Windows	$69.95
1682	Packet Windows	$29.95
1683K	Rig Windows Kenwood	$29.95
1683Y	Rig Windows Yaesu	$29.95
1683I	Rig Windows Icom	$29.95
	Complete Package	
1680K	Kenwood	$99.95
1680Y	Yaesu	$99.95
1680I	Icom	$99.95

MFJ's Transceiver-to-Computer Interface Cable has RS-232 serial interface built-in. Plug between your transceiver and computer serial ports and you have computerized control of you rig through Rig Windows™ software.

Model	Description	HRO Price
5383K	For most Kenwood rigs	$49.95
5383Y	For most Yaesu rigs	$49.95
5383YB	Yaesu mini 6 pin din	$49.95
5383I	For most Icom rigs	$49.95

Code Tutor

MFJ-411 Pocket Size Morse Tutor. Learn from zero code speed to Extra Class with customized code practice. Random, QSO mode, word recognition mode. Easy-to-use menu. Uses 9V battery. *HRO Price $79.95*

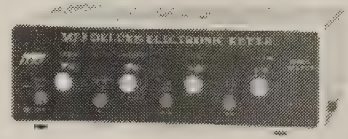


MFJ-557 Deluxe Code Practice Oscillator features a Morse straight key on a non-skid heavy steel base with volume control, tone control, earphone jack, external speaker plug, 9 V battery (not included) or optional AC power supply. Built-in speaker, adjustable contacts. *HRO Price $24.95*

Keyers

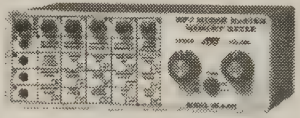
MFJ-422C Keyer/Bencher Paddle combo makes a small, attractive unit that is a pleasure to use. Iambic keying, adjustable weight and tone, front panel volume and speed controls (8-50 WPM), dot-dash memories, sidetone, speaker and automatic or semi-auto / tune modes. Use 9 V battery or 110 VAC with optional MFJ-1312B *HRO Price $134.95*

MFJ-422CX Keyer only. Mount to your Bencher paddle. *HRO Price $79.95*



MFJ-407C Deluxe Electronic Keyer Dot-dash memories, self-completing dots and dashes, jam-proof spacing, RF proof, instant start. Single squeeze, or straight key. Controls include speed, weight, tone and volume. ON/OFF, tune auto / semi-auto, built-in speaker, 9V battery (not included) or 110 VAC with optional MFJ-1305. *HRO Price $69.95*

MFJ-401C Econo Electronic Keyer II. Similar to MFJ-407C but with external speed and volume controls, internal weight and tune controls. Use 9V battery (not included) or 110 VAC with optional MFJ-1312B. *HRO Price $49.95*



MFJ-492 Menu Driven Memory Keyer. No keypad, no complex sequences to remember. Just follow the menu. From the menu you can save and play messages, decrement serial numbers, set speed, weight, sidetone, iambic, semi-auto, handkey, message queue, paddle command modes — turn off on/off sidetone, transmitter tune, keying output on/off —select iambic A or B, reverse paddle, Morse trainer and store starting serial number. Commands can also be keyed from the paddle. Holds 192 characters in four soft sectored message memories. Expandable to more than 8000 characters in eight message memories. Memories have lithium battery backup. Front panel controls for speed (5-100 WPM) and volume. Built-in speaker for side tone. Direct and grid block keying output. Uses 9 V battery or optional 110 VAC with MFJ-1312B. *HRO Price $99.95*

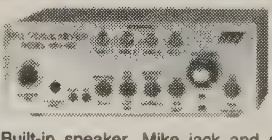
MFJ-493. Like MFJ-492 but with 32K characters of memory. IBM keyboard input makes MFJ-493 into a keyboard. QSO simulator included. *HRO Price $139.95*

MFJ-490 Memory keyer / Bencher Combo. Has all the features of the MFJ-492 except memory expansion. *HRO Price $164.95*

MFJ-490X. MFJ-490 less the Bencher paddle. *HRO Price $109.95*

MFJ-451 Morse Keyboard. Stand alone CW keyboard. 200 character type ahead buffer and two 100 character message memories. Use 12 VDC or optional MFJ-1312B. *HRO Price $99.95*

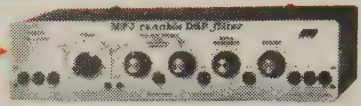
MFJ-452 like the MFJ-451 with 2-line 16 character LCD display. *HRO Price $129.95*



MFJ-432 Voice Keyer. Lets you gain an unfair advantage during a contest by cloning your voice. Built-in speaker. Mike jack and mike cable. Has 4 nonvolatile message memories. Uses 9 V battery or 110 VAC with optional MFJ-1312B. *HRO Price $109.95*

Station Accessories

NEW!

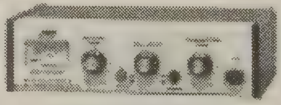


MFJ-784B DSP Filter automatically eliminates heterodynes, reduces noise and interference simultaneously on SSB, AM, CW, packet, AMTOR, PACTOR, RTTY, WeFAX, FAX, weak signal VHF, EME, satellite. MFJ's tunable FIR linear phase filters minimize ringing, prevent data errors and have "brick wall" filter response with up to 60 dB attenuation just 75 Hz away. Only MFJ gives you 5 tunable DSP filters. Tune lowpass, highpass, notch, and bandpass including optimized SSB and CW filters. Vary the bandwidth to pinpoint and eliminate interference. Only MFJ gives you 5 factory preset filters, 10 programmable preset filters you can customize. New MFJ-784B features: tunable Spotting Tone™– an MFJ innovation–accurately tunes CW filter even in the narrowest bandwidth; MFJ's exclusive Adaptive Tuning™– center frequency tuning automatically becomes finer as you narrow bandwidth–makes extremely narrow filters easy-to-use; an improved automatic notch with variable aggressiveness; new quieter audio amplifier gives full 2.5 watts output; speaker on/off button; phone always active; accurate easy-to-use input level indicator; Filter Talk™ function sends precise filter settings in Morse code, automatically bypasses during transmit for monitoring CW, sidetone, voice or data by sensing PTT line; adjustable line level output. 12VDC or 110VAC w/optional MFJ-1315. *HRO Price $239.95*

MFJ-1116 Deluxe Multiple DC Power Outlet. 8 outlets for powering accessories. Connects to 12 VDC power VDC power supply, monitors DC voltage with voltmeter, power switch and 15 amp fuse. 5-way binding posts with standard spacing for dual banana jacks. *HRO Price $44.95*

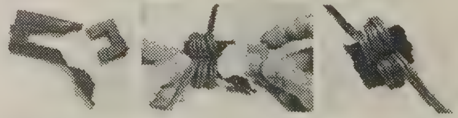
MFJ-1112 like MFJ-1116 without ON/OFF switch, voltmeter and fuse. 6-pair outlets. *HRO Price $29.95*

MFJ-1118 High Current Multiple DC Outlet. Gives you two HF and/or VHF transceivers and six or more accessories from your transceivers's main 12 VDC power supply. Two pair of 30 amp binding posts RF bypassed and individually fused for transceivers. Six additional pair of binding posts are fused and handle a total of 15 amps. ON/OFF power switch and LED power indicator. 0-25 V monitor meter. 6 feet, eight gauge cable with ring tongue terminals. *HRO Price $64.95*



MFJ-624D Deluxe Hybrid Phone Patch has prewired microphone connector, programmable for most radios. VOX / push-to-talk, RF pi-filters, and PC board construction eliminates RF feedback. VU meter, separate transmitter and receiver gain controls, null control, standard phone connection—RJ-11, jacks for speakers, audio in and audio out. Use 12 VDC, 9 V battery (not included) of 110 VAC with optional MFJ-1312. *HRO Price $89.95*

MFJ-931 Artificial RF Ground effectively places your rig near actual earth ground potential. Connects between your rig and random length of wire of a connecting ground wire. Tune for maximum ground current using the built-in RF ammeter. Covers 1.8 to 30 MHz. *HRO Price $79.95*

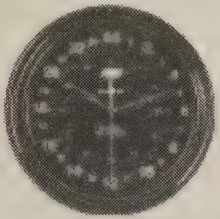


MFJ-701 RFI Free Choke Kit. Four square ferrite toroids formulated for eliminating RFI from .5 to 200 MHz. Separates into tough snap-together plastic halves for easy winding. Package of 4. *HRO Price $14.95*

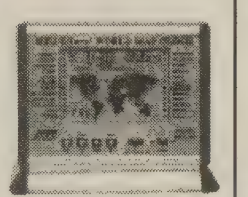
Clocks

NEW!

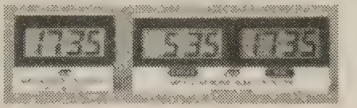
MFJ-114 Giant LED 24 / 12 Clock. Four huge 2.3" red LED digits. Readable from 100 feet away. Wall mount or place on desk top with flip stand. User selectable 12 or 24 hour display format. Battery backup (batteries not included). 110 VAC operation. *HRO Price $39.95*



MFJ-105B 24 Hour Quartz Wall Clock. Handsome black. 10" diameter face, sweep second hand. Uses single "A" battery (not included).
HRO Price $19.95



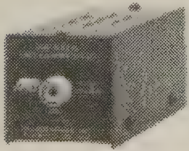
MFJ-112 DXer's World Map Clock. Push-buttons let you move east and west on the map display to the time at any QTH throughout the world. Time display hour/minute/second. Also displays week, month, year and day of the week. User selectable for 12 or 24 hour display format.
HRO Price $24.95



MFJ-107B / 108B 12/24 Hour Clocks Huge 5/8 inch bold LCD digits let you see the time from anywhere in your shack. Choose from the dual clock that has UTC and local display or the single 24 hour clock. Mounted in brushed aluminum frame. Easy set.
HRO Prices MFJ-108B $19.95; MFJ-107B $9.95

Dummy Loads

MFJ-250 1 kW Dummy Load 50 ohm oil-filed dummy load. Low VSWR to 400 MHz. Rated 1 kW CW or 2 kW PEP for 10 minutes. 1/2 rating for 20 minutes. 200 watt CW or 400 watt PEP continuous. Includes high quality transformer oil (no PCB). *HRO Price $49.95*



MFJ-260C VHF/HF Air Cooled Dry Dummy Load. Covers 0-650MHz. Handles 300 watts for 30 seconds. Has derating curves. SO-239 connector. *HRO Price $29.95*

MFJ-264 UHF / VHF / HF Dry Dummy Load covers up to 650 MHz, usable to 750 MHz. Rated 1.5 kW for 10 seconds, 100 watts continuous.
HRO Price $59.95

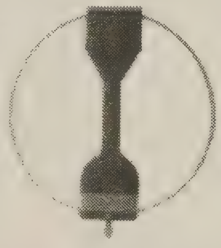
MFJ-704 Low Pass Filter suppresses TVI, RFI, telephone and other interference. Handles full legal power with 2:1 SWR load for 1.8-30 MHz. *HRO Price $39.95*

HF Antennas

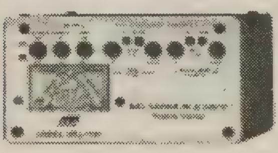
HF Vertical Antenna No Radials

MFJ-1798 Halfwave Vertical. No radials needed. Covers 10 bands: 75/80, 40, 30, 20, 17, 15, 12, 10, 6 and 2 meters. No ground radials or ground needed because of the effective counterpoise that is 12 feet across. Mount it from ground level to roof top. The feed line is isolated from the antenna using MFJ's Air-Core™ balun. Achieves full-sized performance with full size radiators for 2 – 20 meters and high efficiency end-loading for 30, 40 and 75/80 meters. UPS shippable.
MFJ-1796 6 Band Vertical *Sugg. List $199.95*
MFJ-1798 10 Band Vertical. Covers 75/80. 40, 30, 20, 17, 15, 12, 10, 6, 2 meters. *Sugg. List $269.95*

Super Hi-Q Loop 36" Diameter



MFJ-1786 Super Hi-Q Loop Antenna. Only 36 inches in diameter, it is the smallest high efficiency 10 to 30 MHz continuous coverage antenna ever made for ham radio. Features a round conductor that is more efficient than a flat strip. No control cable needed. All welded construction. Welded butterfly capacitor with no rotating contacts. It is totally portable. Built-in mounting bracket makes it easy to mount vertically or horizontally. Handles nominal 150 watts with low SWR.

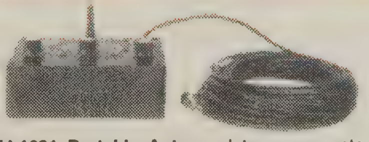


Remote control (included) with Automatic Band Selection, fast and slow tune, audio alert and built-in cross-needle SWR/wattmeter. Uses internal AA batteries (not included), 12 VDC or 110 VAC with optional MFJ-1312. *Sugg. List $299.95*

MFJ-1782 Super Hi-Q Loop Antenna. Same as MFJ-1786 but with standard controller. Does not have SWR / wattmeter or Auto Band Selection. *Suggested List Price $269.95*

MFJ-1778 G5RV. All bands 80 through 10 meters. *Suggested List Price $29.95*

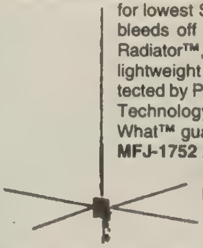
Portable Antenna



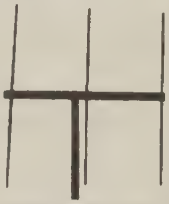
MFJ-1621 Portable Antenna lets you operate in almost any location. Works 40, 30, 20, 17, 15, 12 and 10 meters by using a telescoping whip antenna that extends to 54 inches. Self-standing cabinet, built-in antenna tuner, field strength meter and 50 feet of RG-58 coax cable. Handles 200 watts. *HRO Price $79.95*

VHF Antennas

MFJ-1750 5/8 Wave Ground Plane 300 watt antenna for 2 meters gives you maximum possible gain of any single element antenna. Shunt fed matching network for lowest SWR over entire 2 meter and bleeds off unwanted static. Rapid-tune Radiator™, single U-bolt mounting, strong lightweight aluminum construction protected by Permanent Molecular Bonding Technology™ and 1 year No Matter What™ guarantee. *HRO Price $19.95*
MFJ-1752 220 MHz *HRO Price $19.95*
MFJ-1740 1/4 Wave Ground Plane *HRO Price $12.95*

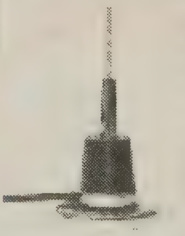


MFJ-1768 Dual Band 144/440MHz Yagi. 5 elements on 440MHz and 4 elements on 2 meters. Uses MFJ's exclusive dual band balanced feed system. Prevents pattern skewing and gives low SWR over both bands. Provides the convenience of feeding two Yagis with a single coax. Light weight (2 lbs.), easy to assemble. *HRO Price $69.95*



MFJ-1763 Portable 3 Element Beam for 2 meters. Easy to store, elements simply screw into the boom. Extra gain and directivity. Compact 2-3/4 foot boom gives you a calculated gain within 1 dB of a four element Yagi. Thick elements maintain high gain and directivity over virtually the whole 2 meter band. A ferrite choke balun gives you excellent feedline decoupling. Coax coupling reduced by mounting the SO-239 connector behind the reflector. Mounts vertically or horizontally. Great for packet. Protected by Permanent Molecular Bonding Technology™, 1 year No Matter What™ guarantee. Weighs 2 pounds, single U-bolt mounting. *HRO Price $39.95*

MFJ-1730 Pocket Roll-UP™ gets base station performance on the go with this half-wave 2 meter J-antenna that sticks in your pocket. The perfect gain antenna for traveling. Omni-directional and significant gain over a 1/4 wave. Protected by 1 year No Matter What™ guarantee. *HRO Price $14.95*



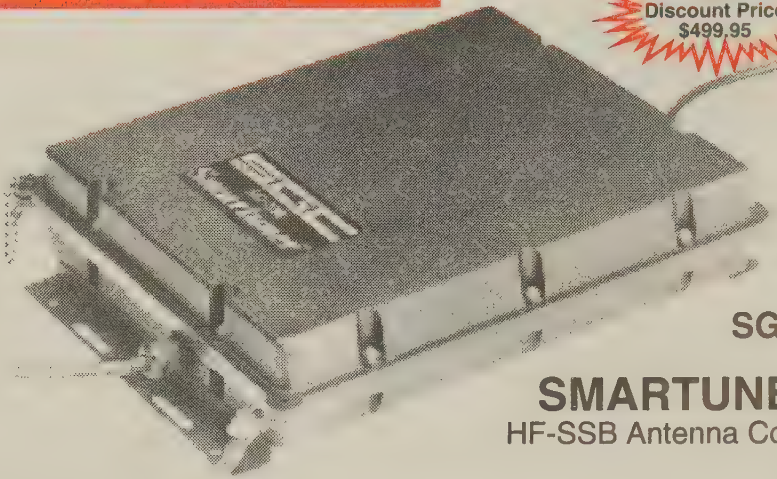
MFJ Mobile Magnetic Mounts
MFJ-1724B Dual Band Mobile gives you quarter wave stainless steel whip for 2 meters and 440 MHz, coax and connector. Low SWR, 200 watts.
HRO Price 14.95
MFJ-1728B, a 5/8 wave 2 meter mobile antenna, covering 144-174MHz , low SWR, 300 watts.
HRO Price 24.95.

MFJ Glass Mounts
MFJ-1734 Dual Band 144 / 440MHz glassmount antenna gives 2.6 dB gain on 2 meters and 6.3 dB on 440 MHz. Low SWR on both bands. Free BNC adapter is included for handhelds. HRO Price $39.95
MFJ-1738 2-meter glass mount antenna handles 50 watts with 2.6 dB gain, low SWR over entire 2 meter band. *HRO Price. $14.95*

ANTENNA TUNERS

SGC

HRO
Discount Price
$499.95



SG-230

SMARTUNER™

HF-SSB Antenna Coupler

The Smartuner, SGC's HF antenna coupler is a new breed of antenna tuner, combining fully-computerized operation with a wide range of antenna matching possibilities. It is a versatile, clever, automatic device with quite surprising capabilities even on random wires. The Smartuner also works with any HF rig! **Suggested List Price $550.00**

- Tunes itself on an SSB signal. It does not need a constant carrier.
- Matches antennas from 2.5 to 27 meters long. A minimum length of 8 meters (25 feet) is required for 160 meter operation.
- Operates continuously from 1.8 to 30 MHz.
- Memorizes tuning which has already been done. There are 500 memory spots.
- The perfect addition to your marine-mobile installation.
- Tunes unknown antennas in just two seconds.
- Tunes a known antenna in milliseconds.
- Needs no bandswitching information, special low power tune-up or special wiring.
- 10 to 150 watts input power.
- Input impedance range is 45 to 55 ohms.
- DC operating voltage range is 10 to 15 VDC .9 amps.

QMS Antenna Tuner

$895.00

Suggested List Price - Call for Quote

The QMS is an HF antenna tuner that can be strapped to the side of your vehicle. It includes an SGC Smartuner™ automatic antenna coupler, an SGC-303 extended full range antenna, and the special exterior, waterproof, mounting package. At first glance it looks a little unusual, but once you use it, you'll find an almost unbelievable jump in reception and transmitting range (3-20 dB). Mounting the tuner and antenna on the outside reduces engine noise and eliminates power draining antenna wire runs between the antenna and the tuner. The QMS makes a typical HF-SSB perform like it's never performed before. Match it with a cutting edge SGC HF-SSB and it will blast holes through major mountain ranges. Power and focus are everything in HF-SSB rigs.

ICOM

Icom has six antenna tuners to use with their radios. All are automatic and, with the front panel controls, can be used with most HF exciters. Random wire and balanced line antennas cannot be used with the resonant antenna tuners. See the table on Page 11 for more tuner/radio compatibilities.

Resonant Antenna Tuners

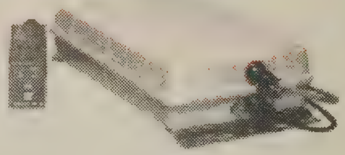
AT-500

A tuner for base station use with a cabinet to match the IC-751A. The AT-500 can be used with the 2KL HF linear.
Suggested List Price: $995.95

AT-150 / AT-160

Fully automatic 100 W tuners styled after the IC-735 and IC-728 respectively.
Suggested List Prices:
AT-150 $539.95; AT-160 $442.95

Random Wire Tuners



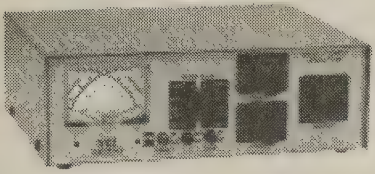
AH2A

This tuner includes a control unit for direct connection to the IC-735. Use with other Icom HF radios with the proper matching cable. Tunes back-stays on a sailboat. Has optional bumper mount and whip (AH2B). **Suggested List Prices: AH2A $691.95; AH2B $275.95**

AH3

This automatic tuner, designed to use with the IC-738, 737A, 728, 725 and IC-707, features automatic digital control tuning and eight frequency memories. Use with the optional AH-2b antenna element for mobile operation.
Suggested List $594.95

Valor
VECTRONICS



VC-300-DLP

$169.95

Suggested List Price - Call for Quote

The VC-300-DLP Antenna Tuner has a built-in dummy load, a peak or average-reading meter and is easy to operate. It is compatible with almost ANY antenna including verticals, dipoles, inverted vees, beams, mobile whips that are fed by coax cable, open feeders, balanced lines or a single wire. Covers 3.5 to 30 MHz continuous for 300 watts. Up to 150 watts for 1.8 MHz. Features a dual movement lighted meter to simultaneously monitor power and SWR.

VC-300-D

$219.95

Suggested List Price - Call for Quote

The VC-300-D is Vectronics' top-of-the-line antenna tuner. It has identical specifications to the VC-300-DLP but also includes a digital bar graph displaying peak output power. LEVEL and DELAY controls have been added to calibrate the display and to vary the display response.

VC-300M

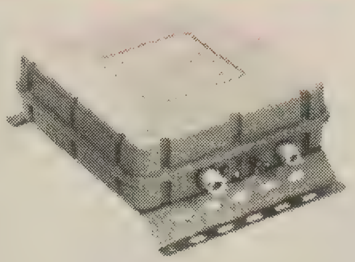
$139.95

Suggested List Price - Call for Quote

The VC-300M Antenna tuner is compact, lightweight, easy to use, and economical. It features a dual movement meter to simultaneously monitor SWR and power. The tuner covers 1.8 - 30 MHz with power up to 300 watts.

Call Toll Free
for HRO Discounts

YAESU



FC-800

This automatic antenna tuner operates with the FT-890 HF transceiver. The tuner is fully automatic and operations can be controlled from the front of the FT-890. **Suggested List $499.95**

FC-757AT

When this tuner is used with the FT-757GX or FT-757GXII, it obtains all band data directly from the radio. Front panel controls allow it to be used with other manufacturer's exciters. The tuner has a microprocessor, a built-in 50 ohm dummy load and automatic SWR calculating system, SWR meter, and dual range RF wattmeter. **Suggested List $530.95**

KENWOOD

AT-50

A fully automatic antenna tuner to use with the TS-50 and other 100 watt HF transceivers. Useful for both mobile and fixed operation. Accurate tuning by pressing the AT TUNE key on the TS-50. Can be installed remotely. **Suggested List $369.95**

AT-300

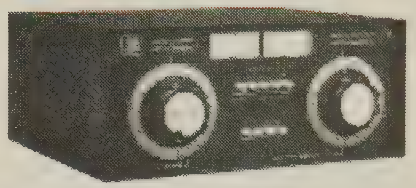
A fully automatic antenna tuner to use with the TS-850, TS-690, TS-450 and TS-50. Designed to tune random wires or a mobile whip. The perfect tuner for mobile operation. **Suggested List $689.95**

AT-450

The AT-450 is an automatic tuner specially designed to operate inside the TS-450S and the TS-690S. It can easily be installed in the field by the ham. **Suggested List $249.95**

Nye Viking

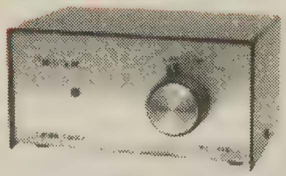
3 KW Tuner
MB-V-A



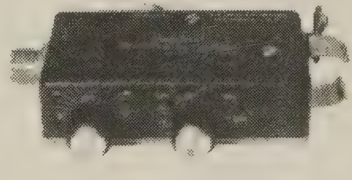
Match transmitter output impedance to almost any antenna system for maximum power transfer. Low pass Pi network tuning 1.8-30 MHz. Automatic SWR. Separate power meter, 300 or 3000 W. Push button antenna switch for 4 antennas. Includes 3 KW balun. This high quality antenna tuner designed for the amateur who wants "the best." **Suggested List Price $791.95**

Palomar Engineers

Tuner-Tuner
PT-340



Help stamp out tune-up QRM (and save your finals at the same time). Just connect the Tuner-Tuner between the tuner and the rig. Tune the receiver to the frequency you want to operate. Turn on the Tuner-Tuner and adjust the antenna tuner until the noise drops out. The antenna tuner is now tuned to the desired operating frequency. **HRO Price $99.95**



R-X Noise Bridge
RX-100

Do you know the resonant frequency of your antenna exactly? The R-X Noise Bridge tells you whether or not your antenna is resonant. If not, it tells you whether it is too long or too short. The RX-100 works with dipoles, inverted vees, quads, Yagi beams, multiband trap dipoles and verticles. Frequency range is 0 to 100 MHz On multiband trapped antennas, adjust each section so that the antenna works properly on each band. Use it to measure coax, tune your antenna tuner, test a balun and check tuned circuits. Since the RX-100 uses your receiver, it is much more accurate than a grid dip meter. **(Warning! Do not transmit into the RX-100. The unit will be damaged.)** HRO Price $79.95

SWITCHES

Surge Protectors

ALPHA DELTA

Transi-Traps

Protect your rig from lightning, EMP and static. Transi-Traps are constructed of the finest quality materials; housings are of die cast aluminum; the brass element provides a constant impedance; the ceramic gas tube cartridge is protected by a unique custom-designed nylon shock absorber. The units give years of reliable service. When hit with a charge that exceeds its rating, it will short and indicate that a replacement plug is required. Most units take thousands of surges before needing a replacement.

Transi-Traps are designed for 50 ohms and include a replaceable cartridge. Units come with UHF connectors. Type "N" are available. To order replacement plugs, specify the model of Transi-Trap so the correct plug can be sent.

Model	Description	HRO Price
RT	200 W through 500 MHz	$32.95
HV	2 kW through 500 MHz	$35.95
LT	T type, 200 W through 30 MHz	$22.95

AMERITRON

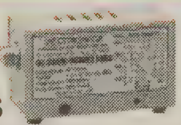
Step-Start In-Rush Current Protector

Stops in-rush current upon power up and absorbs momentary high voltage spikes to your amplifier. **ICP-120** for 110-120V or **ICP-240** for 220-240 VAC. **Suggested List $79.95**

Dummy Loads

Valor

VECTRONICS



Vectronics offers a series of dummy loads for amateur use. Each of these is a dry load that will handle short term transmissions at the rated power levels.

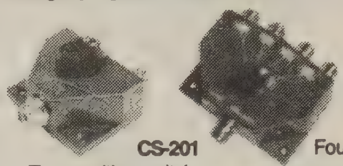
Model	Max Freq	Max Pwr	HRO Price
DL-300M	150 MHz	300 W	$43.95
DL-650M	650 MHz	1500 W	$69.95
DL-2500	150 MHz	2500 W*	CALL

* Fan cooled

Coax Switches

DAIWA

Daiwa has two heavy-duty coaxial switches. Both are useable to 500 MHz and the unused positions are grounded. Switches are available at slightly higher prices with type "N" connectors.

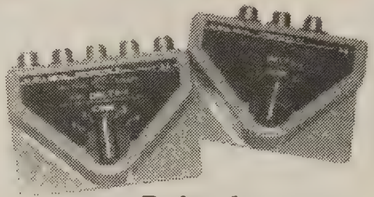


CS-201
Two-position switch.
HRO Price $25.95

CS-401
Four-position switch.
HRO Price $129.95

ALPHA DELTA

Lightning Protected Switches



Delta-4
4 Position Switch

This lightning protected 4 position RF coax switch uses the Alpha Delta Arc-Plug cartridge to protect your equipment from electrical surges. It features the exclusive center "off" (ground) position which internally disconnects and grounds all antenna circuits. The Delta-4 has custom design cast housing with constant impedance microstrip cavity construction for outstanding performance through UHF. The switch uses a positive detent roller bearing switch drive, handles full legal power. Made in the USA. Order Delta-4/N for type "N" connectors. The Delta-4 handles frequencies through 500 MHz and the Delta-4/N through 1.3 GHz. **HRO Price $74.95; Type N $89.95**

Delta-2
2 Position Switch

This 2 position coax switch is precision lightning surge protected. It has the same constant impedance cavity construction with "center-off" ground as the Delta-4 and a built-in replaceable Arc-plug® cartridge. Order UHF or type "N" connectors for low-loss performance through 1.3 GHz. **HRO Price $49.95**; With "N" connectors **$64.95.**

T / R Switch

AMERITRON

QSK-5 Pin Diode T/R Switch. Self-contained. Connects externally to most HF amplifiers. Handles 2.5 kW PEP, 2 kW CW. Six times faster than vaccum relays. **Suggested List $349.95**

Antenna Switches

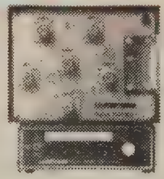
HOFI

The Hofi antenna switch is available in two basic models, manual and remote. The switches are available for UHF or N connectors. Manual switches have the option for straight or angled connectors. The switches are low loss, heavy duty constructed with outstanding isolation. The remote switch requires an 8 conductor cable for control.

Model	Connector	HRO Price
Manual Switches		
605	UHF	$97.95
2005	N	$199.95
616	UHF angle	$139.95
2116	N angle	CALL
Automatic Switches		
611	UHF angle	$319.95
2011	N angle	CALL

Remote Switches

AMERITRON



RSC-8V, DC-UHF 5 kW Coax Switch. Replace 5 coax feedlines with one with this Remote Coax switch. Low SWR to 450 MHz. Low loss. Rated at 5 kW to 30 MHz, 1 kW at 150 MHz. Weatherproof box mounts outdoors on your tower or mast. Attractive control unit sits on your operating desk. **Suggested List RCS-8V $149.95; RCS-8VN with "N" connectors $169.95.**

RCS-4 is a 4 position HF coax switch similar to the RCS-8V. No control cable is required. Handles 2500 watts PEP. **Suggested List 134.95.**

Insulators

hy-gain
by Telex

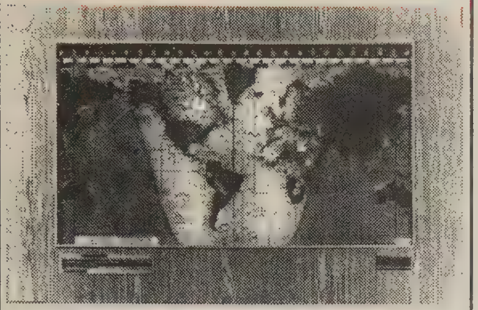
CI Center Insulator

For dipole antennas. Accepts 1/4" or 3/8" coax. Model 157S **HRO Price $26.95**

EI End Insulator

For multiband dipoles. Pair of 7" heavily serrated end insulators. Model 156 **HRO Price $26.95**

Clock



GEOCHRON

Global Time Indicator

Suggested List Price: $1395.95
Call for Special HRO Price

Geochron is a true global time indicator showing the correct time everywhere in the world. It shows day of the week, date of the month, the sun's zenith position, and the distribution of daylight and darkness on the surface of the earth. The Geochron can be mounted on any flat surface like a picture or it can be recessed into the wall with optional flush mounting brackets. Dimensions 34" X 22". Geochron Standard Model is shown without minute indicator. Deluxe version with minute indicator is available. Various color finishes and trim are available to select from.

Baluns

hy-gain
by Telex

BN-4000: Series 243S

These current-type baluns come in three models. BN-4000B for beams; BN-4000D for dipoles; BN-4000N with a type-N connector. Frequency 1 to 54 MHz for beams. **Call for HRO Discounts.**

BN-86: 242S

Broadband 50 ohm ferrite, voltage-type balun. Useable from 3-30 MHz. Comes with clamp to bolt to boom and SO-239 connector. **HRO Price $34.95**

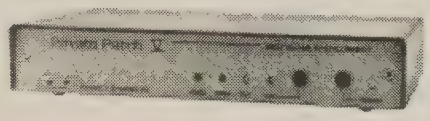
BENCHER

ZA-1A Balun

The ideal 1:1 Balun for dipoles, inverted vees, quads and yagis from 80 - 10 meters lets your antenna radiate, not your feed line. It will accept 1/4"support rope for inverted vees. No rusting materials used. No ferrite cores to saturate and cause TVI. DC grounded for lightning protection. Included "O" ring seals coax connector. Rated 5KW peak. A tough, well-made product, carefully engineered for years of reliable service. **HRO Price $29.95**

CSI

Connect Systems Inc. has been producing the finest interconnect products available for more than ten years. These microprocessor-based products offer many features unavailable from any other manufacturer. Compare carefully and your choice will be clear.



Private Patch V
(VHF / UHF)

Private Patch V is the only simplex patch available that can turn your base station radio into a mobile phone system without any internal connections to your radio. Simply connect to the mike and speaker jacks. Private Patch V can be used straight simplex or through remotely located repeaters to extend range. Other modes to be selected using the built-in programming keyboard (and companion display) include vox enhanced sampling, half duplex and repeater controller. Private Patch V is loaded with high-end features such as 90 memory speed-dialer, redial, pulse or regenerated tone dialing, automatic disconnect on busy signals and dial tone, toll restrict, secret toll override code, ringout on 1-9 ring, remote base mode, call waiting/ line-in-use detect, CW ID and more. Fully FCC and DOC approved. **Suggested List Price $533.95**

YAESU

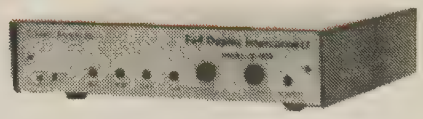
SP-767P

The SP-767P is the phone patch version of the popular SP-767 speaker. Cables are provided for connection to the current line of Yaesu HF radios. It does not include the audio filters of the SP-767 speaker. **Suggested List Price $136.95**

KENWOOD

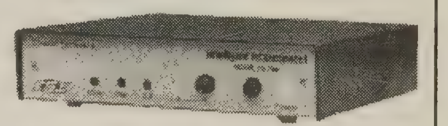
PC1A

This phone patch is compatible with the Kenwood radio line and comes with an 8-wire cable for direct connection to the radio mike plug. The PC1A is FCC part 68 registered. Wired for Kenwood radios but may be used with others after proper changes in the connections. **Suggested List Price $134.95**



Full Duplex Interconnect Repeater Maker
CS—800

This low-cost fully-automatic full-duplex autopatch will convert your duplex dual-band base and mobile / HT into a mobile telephone system. The built-in repeater maker will also repeat crossband if desired. Or, connect the CS-800 to your existing repeater to add autopatch. Initiate and receive telephone calls without assistance. A two transformer hybrid gives optimum duplex null. All features are user programmable / selectable using the built-in keyboard and digital readout display. User programmable features include: 9 phone number speed dialer, Morse ID, toll restrict, access code, toll override access code, regenerated tone or pulse dialing, courtesy beep, repeater on / off code, hangtime and more. **Suggested List Price $399.95**



Simplex Interconnect
CS-700

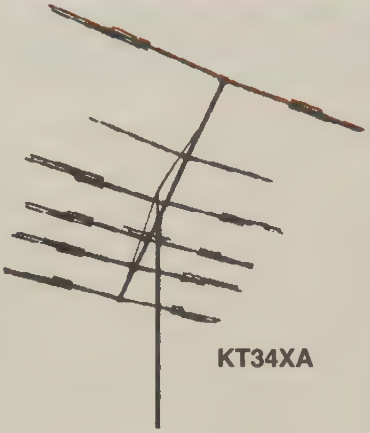
This low-cost fully-automatic simplex autopatch will convert an FM simplex base and mobile / HT into a mobile telephone system. Initiate and receive telephone calls without assistance. The CS-700 gives complete control to the mobile user. Select either VOX enhanced sampling or VOX controlled sampling with the built-in keyboard and digital readout display. Additional user-programmable features: 9 phone number speed dialer, Morse ID, toll restrict, access code, toll override access code, regenerated tone or pulse dialing, courtesy beep and more. **Suggested List Price $399.95**

Simplex Patch
CS-900

The CS-900 is voice activated and can be used simplex or through any remotely located repeater. The standard 1/2 second Electronic Voice Delay totally eliminates syllable or word clipping and results in unsurpassed simplex performance. A 90-memory speed-dialer and remote base mode are also included. The only required connections are to the mike and speaker jacks of your simplex transceiver. This is the best deal going in a simplex patch. **Suggested List Price $379.95**

KLM

HF Antennas



KT-34A / KT-34XA

The KT-34A and KT-34XA are pacesetters for triband performance. The four element KT-34A offers an unusually compact solution for a three-band high performance installation. The six element KT-34XA outperforms all other commercially available tribanders. The performance of these antennas comes from the application of lossless linear loading and high-Q air capacitors.

Monobanders

"World Class Extra" antennas are designed to satisfy the serious DX operator. The **80M-3**, **40M-4** and the 20 m, 15 m and 10 m 6-element monobanders offer the ultimate in performance with no compromises. They are designed to achieve maximum gain, bandwidth and front-to-back ratios. All World Class Extra antennas use nonresonant Phillystran cable for element and boom-support.

160m Vertical

160V is center load for 160m. Use with ground or radials. A compact solution to your 160m needs.

HF Log Periodic Antennas

KLM's Log Periodics offer extended coverage of the amateur bands. The 10-30-7LPA covers 20, 15 and 10 m plus the WARC bands. The addition of a 40M-1 dipole provides 40 m as well and the antenna is the 7.2 / 10-30-7LPA. For continuous coverage from 6-30 MHz use the 6-30-15LPA. The 6-12-8LPA covers 6-12 MHz.

Call Toll-Free
for HRO's KLM Prices

VAN GORDEN

Dipole Kits

Wire dipole antenna kits complete with a Hi-Q balun, copper antenna wire, ceramic antenna insulators, and 100-foot nylon support rope.

Standard Length

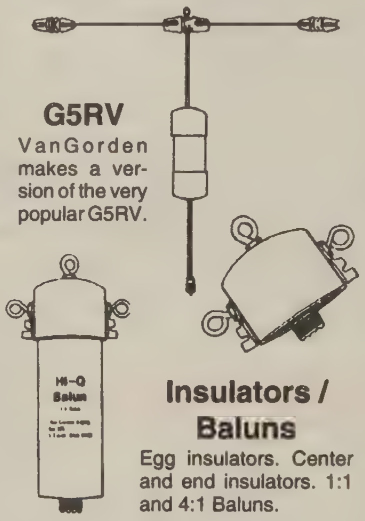
Models D-10 for 10 meters, D-15 for 15 m, D-20 for 20 m, D-40 for 40 m, and D-80 for 75 / 80 m.

Shortened

Models SD-40 for 40 m and SD-80 for 75 / 80 m.

Parallel

These models are made of multiple dipoles connected at the center balun and fed at this one point. Model PD-8010 is for 10-80 meters, PD-8040 is for 40 and 80 m, PD-4010 is for 10-40 m, and PD-4020 is for 20-40 m.



G5RV

VanGorden makes a version of the very popular G5RV.

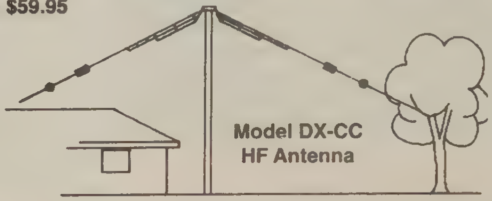
Insulators / Baluns

Egg insulators. Center and end insulators. 1:1 and 4:1 Baluns.

ALPHA DELTA

Alpha Delta makes an assortment of limited space antennas. These all include stainless steel hardware where required, are fully assembled and are manufacturered to withstand severe weather. All antennas have SO-239 connectors.

Model DX-A - A quarter wave twin sloper for 160-80-40 meters. One leg is 67' and the other 55'. Installs as an inverted-V. **HRO Price $59.95**



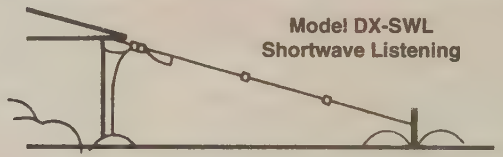
Model DX-CC - A no trap 80-40-20-15-10 meter dipole. 82' long. **HRO Price $99.95**

Model DX-DD - A no trap 80-40 meter dipole. 82' long. **HRO Price $79.95**

Model DX-EE - A no trap 40-20-15-10 meter dipole. Only 40' long. **HRO Price $89.95**

DX-B

The **DX-B** is a single wire, high performance quarter wave sloper antenna for 160, 80, 40 and 30 meters. Designed for limited space, the antenna requires only 60 feet for installation and should be used with a wide range antenna tuner. It comes pre-assembled and pre-tuned. It utilizes stainless steel hardware, 12 gauge insulated solid copper wire and the Alpha Delta "iso-res" RF choke coils for efficient, 50 ohm coax feed. The DX-B is rated for full legal power. **HRO Price $69.95**



The **DX-SWL** model is the antenna tuned for the most popular SWL bands (13, 16, 18, 19, 21, 25, 31, 41, 49, 90 and 120 meters). It can be used as a multi-band transmit antenna with the appropriate antenna tuner. Overall length is 60 feet. Requires a single support. Uses standard coax to connect antenna to your radio. Feed point is 50 ohms and is an SO-239 connection. **HRO Price $69.95**

Van Gorden Antennas

Model	Type	Band	Length ft (m)	Power PEP	Wire Size	HRO Price
D-10	Standard Dipole	10	16(4.9)	2KW	#14	$25.95
D-15	Standard Dipole	15	22(6.7)	2KW	#14	$26.95
D-20	Standard Dipole	20	33 (9.9)	2KW	#14	$27.95
D-40	Standard Dipole	15/40	66 (19.8)	2KW	#14	$28.95
D-80	Standard Dipole	75/80	130 (39)	2KW	#14	$31.95
ALL-BANDER	Standard Dipole	160-10 *	134 (40.8	2KW	#14	$29.95
SHORTY	Dipole	160-10 *	70(21)	2KW	#14	$39.95
SD-40	Shortened Dipole	40	45 (13.5)	2KW	#14	$33.95
SD-80	Shortened Dipole	75/80	90 (27)	2KW	#14	$35.95
PD-8010	Parallel Dipole	10 to 80	130 (39)	2KW	#14	$43.95
PD-8040	Parallel Dipole	15/40/80	130 (39)	2KW	#14	$39.95
PD-4010	Parallel Dipole	10, 20, 15/40	66 (19.8)	2KW	#14	$37.95
PD-4020	Parallel Dipole	20, 15/40	66 (19.8)	2KW	#14	$33.95
G5RV	Dipole	3.5-30 MHz	102(31)	2KW	#14	$49.95

* Antenna tuner required

BASE & MOBILE HF ANTENNAS

BUTTERNUT

Multi-band HF Verticals

HF9V-X

More efficient than conventional trapped designs or "halfwave" verticals, the exclusive Butternut Differential Reactance Tuning system allows more of the antenna to be active on each band, providing greater bandwidth, lower radiation angle, and superior performance!

- 9 bands, 80 thru 6 meters.
- No-radial operation with CPK counterpoise.
- Highly efficient 26 foot vertical radiator.

HF2V

Are you ready for the sunspot shortage? The action will be on 80 and 40 during the sunspot minimum. Be prepared with the Butternut HF2V. The entire antenna radiates on both bands for low radiation angle and maximum performance.

- Dual-band optimized for 80 and 40 meters.
- 32 feet tall; no guying required.
- 160 or 30 Meters with optional adapters.

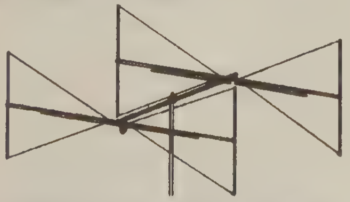
HF6V-X

Work the 6 most popular bands– 80, 40, 30, 20, 15 & 10 meters–with a single, highly efficient vertical radiator only 26 feet tall!

- No radial operation with CPK counterpoise.
- Add 160, 17 and 12, or 6 Meters with optional adapters.

Accessories for Vertical Antennas

CPK Counterpoise kit for HF9V-X, HF6V-X. Allows operation with no radial system.
TBR-160S 160 Meter kit for HF9V-X, HF2V or HF6V-X. Not recommended for use with CPK.
STR-II Resonant radial kit for above ground mounting of Butternut verticals.
RMK-II-Roof mounting kit. Includes STR-II.
A-17-12 Adapter for 17 and 12 meters for 6 band Butternut verticals.



HF5B "Butterfly" Beam

Five popular bands in a single lightweight 2 element beam antenna. Ideal where space is limited, the HF5B provides up to 3 dBd on 20, up to 5 dBd on 15, 12, and 10. Light enough to turn with a TV rotator, the HF5B has a 6 foot boom and a wingspan of only 12.5 feet. Weighs only 20 pounds, surtace area is 3 square feet.

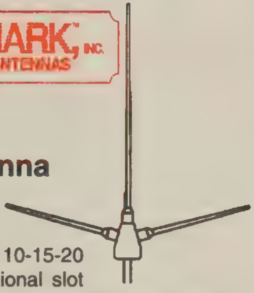
pro·am

HF Mobile Antennas

Model AB5

Pro-Am's heavy-duty HF mobile slim-line antennas cover 75 m, 40 m, 20 m, 15 m, and 10 m amateur bands. Heavy-gauge copper wire wound on 3/8" fiberglass, with nickel-chrome brass fittings and 17-7 taper ground stainless steel whips assure dependable operation. The 4' S.S. whip is field tunable for lowest VSWR and double locked with S.S. set screws. The 3/8-24 ferrule fits standard mobile mounts. Power rated at 250 watts P.E.P. for top mobile performance. Approx. 8' length. **HRO Price $109.95**

MOBILE MARK, INC. COMMUNICATIONS ANTENNAS



Tri-Band Mobile Antenna HW-3A

The HW-3A covers 10-15-20 meters with an optional slot for a 40 or 75 meter element. Each band is independently top-loaded. No traps or switching devices required. The antenna has excellent VSWR at the center frequency on each band. It should be mounted to an appropriate bumper mount. The HW-3/40A is for 40 meters and the HW-3/75A is for 75 meters. **HRO Prices: HW-3 / 40A $39.95; HW-3 / 75 $89.95**

Mobile Antenna Heliwhip / Kilowhip

The Heliwhip and Kilowhip Series are fiberglass-molded continuously-wound antennas for 10, 15, 20, 40 and 80 meters. The Kilowhips are high powered versions of the Heliwhips. Power handling is 100 W for the Heliwhip and 1 kilowatt for the Kilowhip.

Mobile Mark Whips

Model	Center MHz	Bandwidth KHz	HRO Price
HW-80	3.8	50	$32.95
HW-40	7.25	100	$32.95
HW-20	14.2	250	$32.95
HW-15	21.2	500	$29.95
HW-10	29	1000	$29.95
HW-6	52	2000	$29.95
KW-10	28.6	800	$49.95
KW-15	21.3	400	$49.95
KW-20	14.2	250	$49.95
KW-40	7.22	60	$49.95

OUTbacker®

The Ultimate All-Band HF Mobile Antennas

The Perth

The *Perth* is a 3-1/2 foot sleek stinger with a 4 foot main shaft where the taps are located. It has a very tough, yet flexible fiberglass core, helically wound with copper wire which is hand tuned to the various "tap" frequency points.

The *Perth* offers high performance with low wind drag. This low wind resistance allows the *Perth* to be easily mounted on the trunk lip, hatches, and bumper installations with a standard 3/8 X 24 stud. The sleek stinger retracts into the main shaft for easy stowage. With a proper ground plane, the *Perth* is also suitable for apartment and condo installations.

Outbacker

There is no need to change coils when changing HF bands for mobile operation. The Outbacker™ is the answer for every mobile ham. The antenna comes in two models: a six foot version that handles up to 300 watts PEP and a four foot Junior model for up to 150 watts PEP.

The antennas are made of fiberglass and coated with smooth epoxy resin and polyurethane to provide strength, protection and durability. The pre-tuned copper helical winding has connection point sockets constructed of rust-free brass and clearly marked for each band. The antenna covers all bands from 10 to 80 meters.

Mount the antenna with a standard 3/8 X 24 thread. Use the Hustler BM-1 or SSM ball mounts. For ease of mounting there is an optional heavy duty spring and 2 inch base that can be mounted at the bottom of the antenna and attached to a PL-259 connector.

HRO stocks the Perth, three models of the Outbacker™ and the optional spring base:

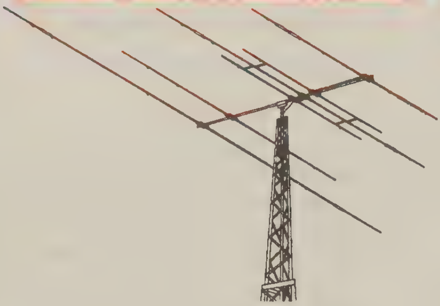
Model	Description	HRO Price
Perth	150 watts PEP all bands	$274.95
OB	Full size antenna, all bands, 300 watts PEP	$259.95
OB-JR	Jr. size antenna, all bands, 150 watts PEP	$229.95
OB-SB	Optional Heavy-Duty Spring and Base	$82.95

hy-gain by Telex

Your Performance Advantage

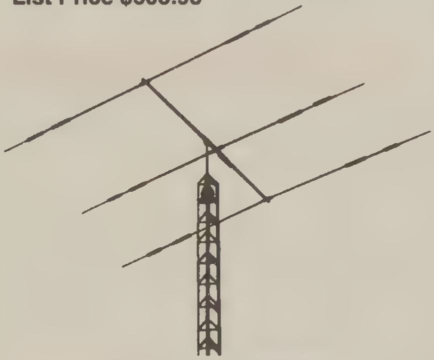
Innovation • Value • Customer Service

HF Tribanders



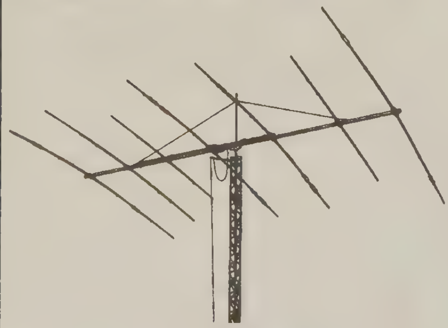
Explorer 14 (395S)

Give your sold state transceiver a break; the Explorer 14 is the most broadbanded HF antenna around. Our exclusive Para-Sleeve design optimizes bandwidth without a tuner. Best performance on a 14' boom. A 30 or 40 meter add-on kit is available for added coverage. **Suggested List Price $605.95**



TH3 Mk4 (388S)

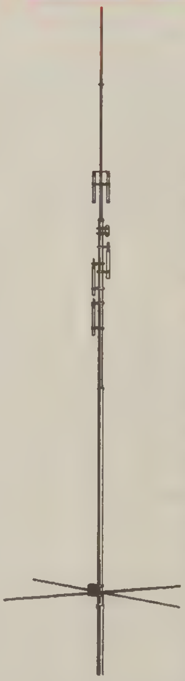
The classic design in a small tribander. Performance and value in one small package. Perfect for home stations, this antenna is the choice for DXpeditions too! **Suggested List Price $785.95**



TH7 DX (391S)

Nothing performs like the world famous TH7 DX! This high performance tribander gives you the competitive edge you want on 10, 15, and 20 meters. **Suggested List Price $936.95**

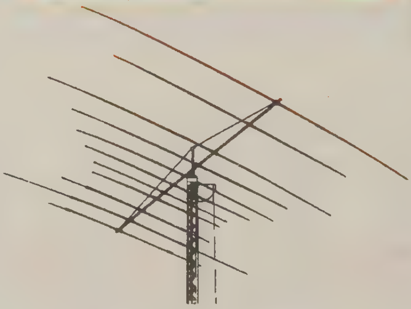
HF Vertical



DX 77 Advanced Vertical Windom

The unique design of this vertical antenna provides no-compromise performance without the need for ground radial wires. The superior mechanical design, high power capabilities and 55% greater bandwidth than competitive verticals on 20 and 40 meters make it an exceptional value. Covers the Ham bands 10 through 40 meters, including the WARC bands. Automatic band switching and low angle of radiation for DX. Features double-wall tubing, steel mast clamps and stainless steel hardware. 29' tall, it has a new easy-tilt mount making it convenient to lower for tuning. May be mounted on a pole, chimney, rooftop, or deck, or used for portable operation. Comes with Telex's 2 year limited antenna warranty. **Suggested List Price $419.95**

Five HF Bands



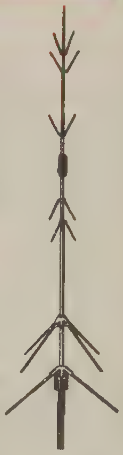
TH11 DX (398S)

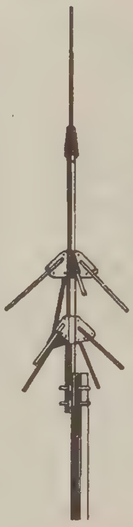
A unique design giving you the frequency coverage of a log periodic plus the performance of a monobander. Covers 10, 12, 15, 17, and 20 meters with one boom and feedline. **Suggested List Price $1244.95**

VHF/UHF Base Antennas

V42R (331S)

Expand your capabilities with this dual band performer. This omnidirectional antenna gives you 3 dBd gain on 2 meters as well as 5 dBd on 7 cm. Comes complete with a type N connector. **Suggested List Price $152.95**



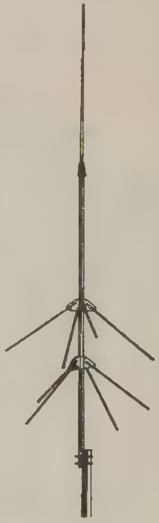


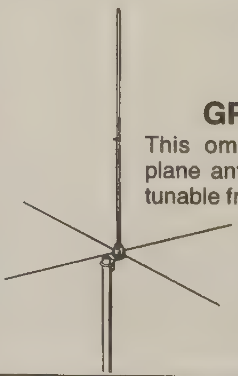
V4R (337S-1)

You can't beat this antenna! With wind survivability to 220 M.P.H., the V4R provides 3 dBd gain with a wide coverage pattern. It features two colinear 5/8 wave antennas fed in phase along with 2 sets of radials that decouple the lower radiator from the mast. Tunable from 400-475 MHz. Comes with a type N connector. **Suggested List Price $112.95**

V2R (335S-1)

A rugged antenna for 2 meters, the V2R provides 3 dBd gain with a wide coverage pattern. It features two collinear 5/8 wave antennas fed in phase along with 2 sets of radials that decouple the lower radiator from the mast. Tunable from 138-175 MHz with wind survivability to 120 M.P.H. **Suggested List Price $117.95**





GPG-2B (338)

This omnidirectional ground plane antenna for 2 meters is tunable from 142-168 MHz and delivers gain of 1.2 dBd. A rugged antenna, it has wind survivability to 100 M.P.H. **Suggested List Price $48.95**

Force 12

No-Trap Antennas for Serious Hams

Call for HRO Discount Prices

Force 12 Features

Antennas for Everyone

Force 12 produces more than 70 antennas covering 160 to 6 meters. They include dipoles, yagis, verticals, and magnetic transmitting/receiving loops. The yagis feature monobanders, duobanders, tribanders, 4-banders, and 5-banders. These antennas have no traps or phasing systems. All include these standard construction features:

- Pre-aligned element-to-boom brackets; the elements are always straight.
- Multi-taper elements glide in the wind and provide the lowest visual profile.
- Riveted element joints make assembly a breeze. They are predrilled and prebundled.
- Easy-On™ mount for quick, easy installation.
- Neighborhood-friendly look with non-polished aluminum.
- Elements 6061-T6 top-grade aluminum.
- 60-90 minute assembly time (C-3, C-3S).
- Rated at 5KW.
- 4' packaging for Dxpeditions (C-3, C-3S).
- Standard 80 mph rating; 100 mph optional.

Really Big Ones

Magnum Force Series

Some of the models available:

515/410 36' boom with a turning radius of 21.4'; 5 elements on 15 m provide a gain of 13.41 and 4 elements on 10 m produce a gain of 11.35.

615 15 m monoband with 36' boom and 6 elements; gain 14.33.

620 44' boom with 6 elements on 20 m. Turning radius of 27.4.'

320/340 36' boom with 3 elements on 20 m and 3 on 40 m. Turning radius 28.5.' 20 m gain 11.7; 40 m gain 10.3.

520/240 36' boom with 44.5' elements; 5 elements on 20 m and 2 on 40.

620/340 44' boom with 44.5' elements; 6 elements on 20 m and 3 on 40.

20/30/40 Composite with 3 elements on 20 m, 2 elements on 30, and 2 elements on 40.

380 66.5' elements of a 3-element yagi for 80/75.

2/2 36' boom with 2 elements on 80/75 m and 2 elements on 40. Two feedlines.

Call HRO about other models available.

Classic Tribanders

C Series

Force 12 has the finest lineup of antennas to cover the classic 20-15-10 bands with a single feedline. The antennas feature gain of 17 and 12 meters with a VSWR of about 2.8:1, easily matched with any tuner. All are trapless and are acclaimed as outperforming all the various trapped antennas.

The C-3 is the first model in Force 12's classic 3-band series. After 2 1/2 years of development, the 18' boom design with 7 elements provides the finest performance ever offered in a tribander. It has an effeciency greater than 98%, and our customers tell us that the C-3 outperforms every trapped antenna, regardless of boom length. Now the unbeatable C-3 performance has been extended to a smaller footprint.

The C-3S incorporates a redesigned 10-meter section allowing the boom to be only 12'. The trade-off is the C-3S covers about 1.1 MHz (i.e. 28.200-29.300) with a 2:1 VSWR, where the C-3 covers the entire 10 meter band. The gain of the C-3S is within .1 to .2 dB of the C-3.

The C-3S can also cover 40 meters with 130 kHz 2:1 VSWR. This is the C-4S. The C-4C conversion can make the C-3S into a C-4S in the field. Also available is the C-3XL, a composite of larger monobanders.

C-3	20-10 m, 18' boom.
C-3S	20-10 m, 12' boom.
C-4	40-10 m, 18' boom.
C-4S	40-10 m, 12' boom.
C-3SL	20-15-10 m (3-element 20, 3-element 15, 4-element 10, all with separate feedlines for maximum versatility).
C-4XL	40-10 m, 30' boom (includes 2 elements on 40).
C-4SXL	40-10 m, 23' boom (includes 2 elements on 40).

Magnetic Loops

MTR's

Magnetic transmitting and receiving loops (MTR's) made from 2" tubing are available for 80, 40, and 40-20. They provide an excellent antenna for confined or restricted locations. MTR's are perfect for regional coverage with NVIS propagation.

Multi-band Yagis

Strike Force Series

Some of the models available:

5BA 32' boom 5-band yagi for 20-17-15-12-10 m. Features 3 feedlines and is the finest 5-band available. Turing radius in 24.5'

4BA 24' boom 4-band yagi for 17-15-12-10 m. Features 2 feedlines. Turning radius is 18.4.' Perfect to stack with a 20-40.

DX Series

Some of the models available:

DX34 24' boom yagi for 20-17-15 m. Features 2 feedlines. Perfect punch for these DX bands.

DXer/S 12' boom version of the terrific DXer. Single feedline. Fits into any environment.

20 / 40 Composites

Elite Force Series

Some of the models available:

EF-420240 30' boom with 44.5' elements; 4 elements on 20 meters and 2 elements on 40.

EF-320X240S 28' boom with 37' elements; 3 elements on 20 meters and 2 elements on 40.

Monobanders

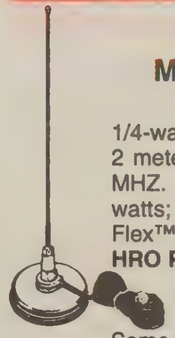
Elite Force Series

Some of the models available:

EF-180S	54' rotatable dipole for 80/75
EF-180B	66.5' rotatable dipole for 80/75
EF-280B	2 element yagi for 80/75
EF-140	44.5' dipole for 40 m
EF-140S	37' dipole for 40 m
EF-240	2-element 40 m yagi
EF-240X	2-element 40 m yagi
EF-240S	2-element 40 m yagi
EF-230	12' boom, 2-element 30 m yagi
EF-320	18' boom, 3-element 20 m yagi
EF-420	30' boom, 4-element 20 m yagi
EF-317	12' boom, 3-element 17 m yagi
EF-417	24' boom, 4-element 17 m yagi
EF-315	12' boom, 3-element 15 m yagi
EF-415	20' boom, 4-element 15 m yagi
EF-515	24' boom, 5-element 15 m yagi
EF-410	12' boom, 4-element 10 m yagi
EF-510	18' boom, 5-element 10 m yagi
EF-610	24' boom, 6-element 10 m yagi

Valor

Antenna Mounts



VHF 1/4 Wave Magnetic Mount Kits

Model VAA-002

1/4-wave magnetic mount antenna for 2 meters. Can be cut for 220 or 450 MHZ. 17-7 stainless steel whip; 100 watts; complete with 12-foot Valor-Flex™ cable and PL-259 connector. **HRO Price $23.95**

Model VAA-002BNC

Same antenna as VAA002, except with BNC connector. **HRO Price $27.95**

Model 105AD

Mount Assembly: Heavy duty 3/8 SO-239 Connector, nickle plated. No chance of rust or corrosion. The brass hex is chrome plated. For plug-to-plug connections. **HRO Price $5.99**

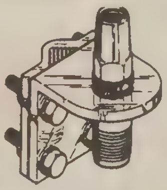
Window Mount Kit

Model WMSLBNC

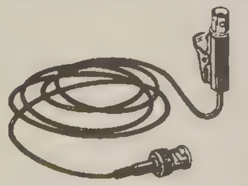
Slim Line window mount kit with BNC connectors and 7' RG188 cable. Easily mounted to any vehicle window. Features black finish window mount, BNC connectors, and high tech design. Ideal for handheld radios for amateur, CB, scanner and commercial users who need extra performance. **HRO Price $34.95**

Stainless Mount

Model SSI00AD



Stainless steel 3-way mount installs horizontally, vertically, or flush. Heavy-duty 3/8 S0-239 connector. All stainless steel hardware and chromeplated brass hex. Fits all standard 3/8-24 antennas up to 48". For plug to plug hookups. **HRO Price $14.95**



Hat Clip

Model BNC-HC

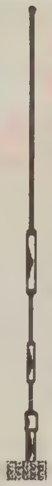
BNC Hat Clip with 4' of cable and BNC connector. **HRO Price $14.95**

Trunk Lip Mounting Kit

Model PAT2

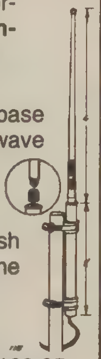
This low profile, no-hole trunk mount features the Mototola Style 1-1/8"-18 thread for amateurs who demand the very best and professional quality. **HRO Price $27.95**

AUSTIN ANTENNA



Spectra 4-band is a tuned mobile or base antenna. It covers low and high VHF with 1/4 wave elements, UHF and 800/1000 MHz with 1/2 wave elements. It is 33 inches long and has a Motorola type connector for easy mobile mounting. **HRO Antenna Price $84.95**

A pole mount is available for base station usage. At 48 inches long, it increases the VHF elements to 1/2 wave for enhanced performance. **HRO Price (Antenna and Pole) $139.95**



Suburban 3 and 4 band base antennas have center fed, half wave radiators de-coupled by a resonant cavity and housed in a slim white fiberglass radome for protection against harsh environments. No ground plane or field adjustments needed.

HRO Prices:
144, 222, 440 MHz $69.95
144, 222, 440, 1280 MHz $109.95
50, 144, 222, 440 MHz $169.95

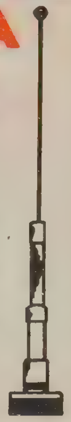
Condor is a true multiband flexible with tuned 1/4 wave elements for high band VHF, UHF, and 800/1000 MHz. The BNC connector is imbedded in the high density urethane housing to withstand rough handling. Replace that stock rubber ducky and pull in the weak signals. **HRO Price $29.95**

DFQ is a monoband, center fed, stacked 5/8 wave antenna in a fiberglass radome for maximum survivability. A perfect portable or base antenna. Available for amateur bands 2 meters to 1.3 GHz.

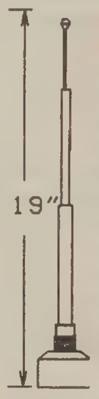
HRO Prices: 144 MHz $64.95
222 MHz $59.95
440 MHz $59.95

Multiplexers for simultaneous unswitched operation with separate radio systems. Superbly made band pass filter ports have less than 0.5 dB insertion loss and port-to-port isolation that exceeds 50 dB. Match all Austin multiband antennas. Fabricated in rugged aluminum housings, with N-type connectors for constant impedance and minimum loss.

HRO Prices: Triplexer $130.00
Quad-plexer $170.95
Pentaplexer $199.95



500C dual band mobile antenna covering 2 meters and 70 cm, uses patented resonant cavity techniques to achieve high performance and simultaneous match for multiband operation. The UHF element is a ground independent 1/2 wave radiator. In VHF operation, an offset-fed 1/4 wave element uses the vehicle as a ground plane to lower the usually high 1/4 wave radiation angle. Only 19" tall, the antenna will not bend over at highway speeds. Performance exceeds that of a typical 5/8 wave design at highway speeds. **HRO Price $32.95**



Metropolitan mobile multiband antennas use state-of-the-art resonant cavity techniques to achieve high performance and simultaneous match for VHF/UHF operation. All elements are end fed 1/4 wave elements using the vehicle as a ground plane. Decoupling of each element is by means of the resonant cavity, which also produces a 50 ohm match. This isolation produces a superior radiation pattern that provides great performance on all bands. The tribander covers 144, 222, and 440 MHz. The quadbander adds 1280 MHz.

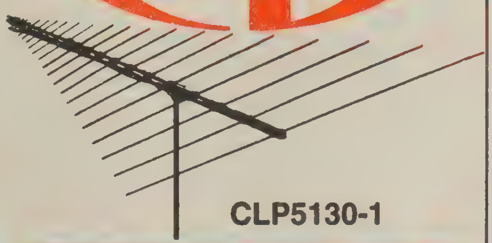
HRO Prices: Tribander $39.95
Quadbander $49.95

Pentenna is a five band mobile which adds either 10 or 6 meters (your option). **HRO Price $99.95**

Ferret multiband **SCANNER** antenna is an array of tuned elements providing state-of-the-art performance from 30 to 1300 MHz. Use of dielectrically tuned chokes, multi-tuned parallel resonant circuits and asymmetrical elements yields resonances at 40, 100, 122, 146, 310, 465, 865 and 1280 MHz. Housed in a white lightweight fiberglass radome, an aluminum mounting tube is provided for easy installation to a mast or side brackets. Termination is an N connector. A 10 dB broadband preamp module with matching variable voltage power supply that mounts at the antenna is available. **HRO Antenna Price $249.95**

MORE ANTENNAS

CREATE



CLP5130-1

Log Periodic Antennas

The **CLP5130** antennas are high gain, wide band VHF/UHF log periodic beam antennas for horizontally polarized base station use. Use for amateur bands from 50–1300 MHz and FM broadcasting, scanning, VHF / UHF TV, air band communications, government application, and business bands.

The forward gain is 10 to 12 dB—10 to 16 times the gain of a nondirectional discone type antenna. The VSWR is less than 2.0:1 across the band.

The antennas, constructed from high quality aluminum, have a boom design that allows movement of the phasing line. Distortions in the vertical and horizontal planes are minimized and element adjustment is not necessary. The boom-to-mast bracket is made of a lightweight and rugged magnesium alloy.

	CLP5130-1	CLP5130-2
Frequency	50-1300 MHz	108-1300 MH
No. Elements	23	19
Power	500W PEP	500W PEP
Forward Gain	10-12 dBi	10-12 dBi
Front/Back	15 db	15 db
Longest elemen	9' 10"	4' 6"
Boom length	5' 9"	4' 6"
List Price	$379.95	$259.95

Maldol

Maldol produces high performance antennas for HF, VHF and UHF applications. There are antennas for the handheld, mobile operation and the base station. A complete line of mounts are available as well as roof mount towers.

Contact your HRO representative for a description & price of your chosen Maldol antenna. Several are described here.

ARTseries

The Art Series are 2m / 70 cm dual band high performance mobile whip antennas. These use the "V-Match" system to ensure full power radiation. A 24K plate center pin reduces loss. The pop-out adapter lets the antenna tilt to avoid damage in low height situations.

Model	Gain dB	Lgth In.	Pwr Watts	Sugg. List
ARD-5B	-/3.8	19.6	120	$55.99
ARD-6	2.6/4.9	26.8	100	$64.99
ARD-10B	3.0/5.5	34.8	120	$69.95
ARD-18B	5.0/7.7	65.6	150	$99.99

Base Station Series

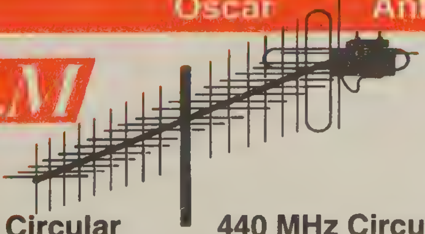
Model	Gain dB	Lgth Ft.	Pwr Watts	Sugg. List
HS-WX-1	4.5/7.2	6	200	$99.99
HS-WX2	6.0/8.0	9	200	$139.95
HS-WX5B	9.2/13.0	23	250	$229.95

Handheld Antennas

Model	Freq MHz	Lgth In.	Sugg. List
HS-2RB	146	4.4	$13.99
HS-70RB	440	4.4	$13.99
AH-209S	146/440	3	$15.99
HS-702S	146/440	17.6	16.99
AH-210R	146/440	Telesc	49.99

Oscar Antennas

KLM



2m Circular

Circular polarized models for 2m: **2M-14C** and **2M-22C**. Excellent for Oscar. Circular polarity switch included with each antenna.

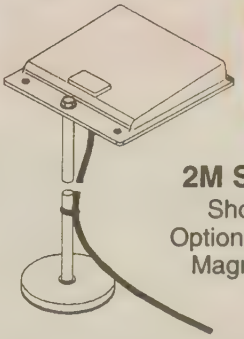
440 MHz Circular

Circular polarized models for 440 MHz: **435-18C** and **435-40CX**. Excellent for Oscar. Circular polarity switch included with each antenna.

Fiberglass Masts

To provide proper horizontal boom insulation for OSCAR operation, KLM has two fiberglass masts: one 5 feet; the other 7.5 feet. Care should be taken in selecting the elevation rotator. The masts are too large for the Alliance U110 which is sometimes used. The masts will work with the Yaesu rotators.

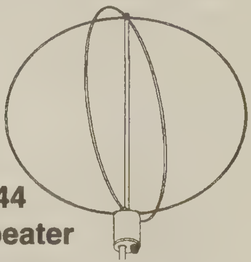
M²



2M SQLOOP

Shown with Optional Mast and Magnet Mount

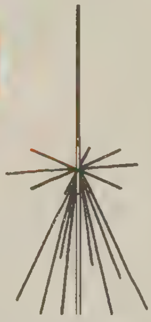
The omnidirectional horizontally-polarized SQLOOP is for mobile or base use. The 2 meter antenna is a flat 8" square, reduced size loop, cut out of one piece of aluminum to minimize loss. The basic 2 ohm impedance of the loop is efficiently balance fed with an inductive, magnetically shielded coupling loop.



EB-144
2M Eggbeater

The Eggbeater offers exciting new performance characteristics for fixed and mobile operations. The EB-144 produces smooth omnidirectional horizontal polarity at the horizon. Above the horizon, the pattern transforms to right hand circular off the top making it a natural for OSCAR use. No rotation or steering is required.

DIAMOND ANTENNA



D-130J Super Wideband Discone

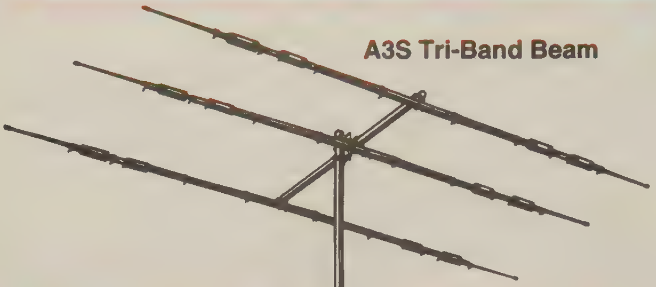
Monitor 25-1300 MHz. Transmit on 50, 144, 430, 1200 MHz. All stainless steel. Input power 200 watts. Impedance: 50 ohms. VSWR: 1.5:1. Length: 1.7 meters. Mounts on 1" to 2" masts. **HRO Price $99.95**

MAXRAD

These quality VHF / UHF antennas are available. Please call for models, specifications, & quotes.

cushcraft

World Ranger Series


A3S Tri-Band Beam

Multi-Band Beams

The four-element A4S with stainless steel hardware outperforms other beams in day-to-day operation and the tough competition of contests. It has achieved the success of DXCC in only two days. The combination of precisely tuned traps with excellent spacing to element length ratios make the A4S a proven winner. Designed for easy assembly, the A4S is light weight, built to last and has a clean profile to reduce wind load. The A3S, with all stainless steel hardware, is the most popular three element, three-band beam available today. It has plenty of gain and good front-to-back ratio. Great performance is yours with a clean profile beam that can be mounted on a lightweight tower and rotator in a very small space. Rugged design features insure many years of trouble-free operation.

A3S	10, 15, 20 m, 3-element, 8.0 dBd gain
A3SDX	Smaller package A3S for easy travel
A4S	10, 15, 20 m, 4-element, 8.9 dBd gain

World Ranger Four-Band Upgrade Kits

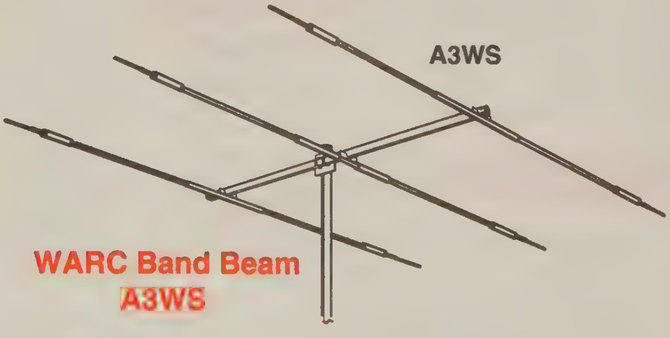
Convert Cushcraft A3S and A4S beams to four bands with this simple add-on kit. You'll be able to work the 40 meter DX when sun spots are low. With an easy adjustment, the new 10 MHz WARC band is available.

A743	30 or 40 meter kit for A3S
A744	30 or 40 meter kit for A4S

Rotatable Dipoles

These dipoles give bi-directional performance and rotatable convenience. You can mount them high and away from the trees for much better performance than a wire dipole. Our single and multi-band dipoles feature high-performance traps, heavy wall tubing, and rugged hardware for years of reliable operation.

D40	40 meters
D4	10, 15, 20, 40 meters
D3	10, 15, 20 meters
D3W	12, 17, 30 meters


A3WS

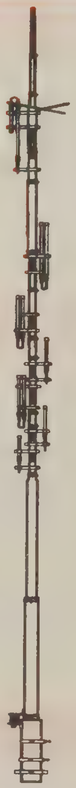
WARC Band Beam A3WS

The A3WS 3-element beam gives full performance on 12 and 17 meters. With the addition of our easy-to-use A103 add-on kit, it will also cover 30 meters. It needs only a lightweight tower and rotator or you can mount it above your existing tribander. A3WS features pinned boom sections, heavy duty element clamps with backing plates plus all stainless steel hardware.

A3WS	18, 24 MHz, 8 dBd gain
A103	10 MHz (30 meter) kit for A3WS

HF Multi-Band Verticals

AP8A Eight-Band Powerwave



This 8-band quarter-wave is designed for maximum performance on 10, 12, 15, 17, 20, 30, 40, and 80 meters. It uses high quality components yet is priced for every ham's budget. Assembly is a snap using just a few basic tools.

The heart of the AP8A is the Powerwave Trap which incorporates a time-proven Cushcraft capacitor design. This results in compact traps with better frequency selectivity and 10% greater radiaiton efficiency. Capacitor sections are sealed and bonded with adhesive-lined heat shrink tubing.

The AP8A has thick wall seamless aluminum tubing and high tensile fibergalss for exceptional strength. All the hardware is stainless steel. It stands 26 feet tall. Ground radials are needed for optimum performance.

AP8A	10, 12, 15, 17, 20, 30, 40, 80M
APR18A	Radial Kit (for use with AP8A or any other HF vertical)

Most Economical Vertical HF Antennas

Economical high-performance antennas for today's active multiband station. Automatic switching, broad-band enclosed traps. These verticals may be roof or ground mounted.

AV3	10, 15, 20 meters
AV5	10, 15, 20, 40, 80 meters

Call Toll-Free for Cushcraft Discounts

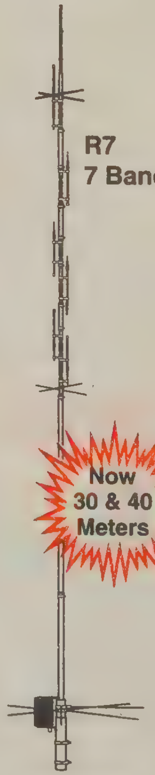
R7, R5

It's the one you've asked for. Amateur radio's **Most Popular** vertical design now gives you 30 and 40 meters with **No Ground Radials**! Only 22 feet tall, the R7's small footprint and ground independence give you "mount-anywhere" flexibility. Assembly is a snap.

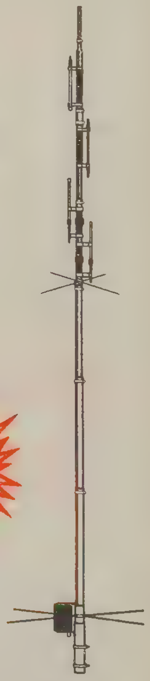
Automatic frequency selection and 7 short counterpoise rods let you concentrate on DXing, contesting, or rag-chewing from your apartment, condo, or motorhome. Convenience is only one reason to own an R7. The main reason is performance–pile-up breaking power made possible by the R7's low angle of radiation. This might explain why so many hams with room to spare have chosen the R5 and now the R7.

Your only connection to the R7 or R5 is the coax to your rig. Experience amateur radio's highest performance-to-size ratio–now also on 30 and 40 meters.

R5	20, 17, 15, 12, 10 M 17' tall
R7	40, 30, 20, 17, 15, 12, 10 M 22' tall

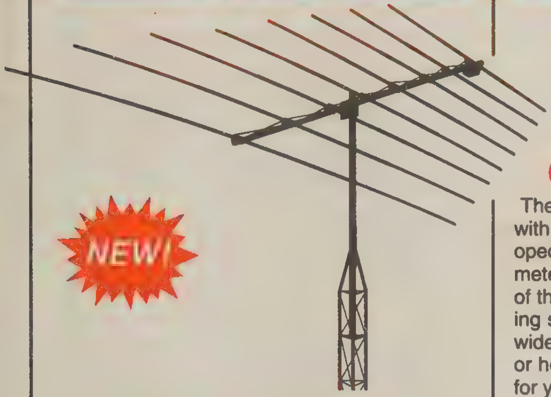

R7
7 Band

Now 30 & 40 Meters


R5
5 band

HF / VHF / UHF ANTENNAS

Log Periodic



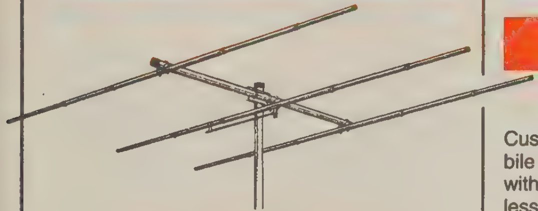
NEW!

ASL-2010 Skylog

This log periodic is the most cost effective, high gain, five band antenna solution on the market today. Gain (6.4 dBd) and beamwidth (65 deg.) are constant for uniform coverage from 10 to 20 meters. The Skylog is rated for continuous duty at full legal power. The boom is 18 feet and the tuning radius 19.5 feet. Stainless steel hardware and incredibly rugged element design make this antenna a "survivor."

ASL-2010 13.5 to 32 MHz

10 Meters



TEN-3
10-Meter Monobander

Our 3-element beam is for the novice, technician or any ham who wants high gain with a good front-to- back ratio on 10 meters. This antenna is on an 8 foot boom making it easy to install on a very simple mount with only a lightweight rotator. The matching system is our proven Reddi-Match for 50 Ohm, no balun feed and SO-239 connector. Make more positive contacts with the **TEN-3**.

TEN-3 3 element 8.0 dBd gain

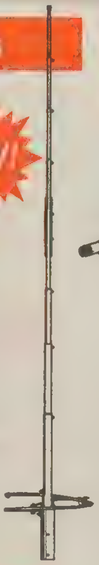
10 Meter Mobile

CS28M is a magnet mount mobile for 10 meters. It is an ideal companion to those new 10 meter multimode rigs. Cushcraft / Signals mobiles are recognized by professional users around the world for their rugged good looks and dependability. The antenna is complete with 49" stainless steel whip and spring and 90 pound pull chrome-plated magnet with Protective Mylar® pad. Twelve feet of high quality RG-58AU coax and PL-259 connector. You'll be on the air in a matter of minutes, operating mobile to Munich and many more DX locations.

Ringo Rangers

NEW!

ARX-6
6 M Ringo Ranger



The ARX-6 combines compact size with great bandwidth. It was developed to meet the needs of serious 6 meter FM hams. It has twice the gain of the standard AR-6. If your operating style requires the most gain and wide-area coverage from a repeater or home station, the ARX-6 is made for you.

ARX-6 6 meters, 50-54 MHz, 24' tall

Ringo Rangers–for the Impossible QTH!

Ringo half-wavelength verticals feature a low angle of radiation and direct DC ground for lightning protection. The Ringo is very easy to assemble and comes in models for all popular VHF and UHF frequencies.

AR-2	2 meters, 135-160 MHz	4' tall
AR-6	6 meters, 50-54 MHz	10' tall
AR-10	10 meters, 28-29.7 MHz	18' tall
AR-220	220-225 MHz	3' tall

Mag Mount Mobils

VHF / UHF Antennas

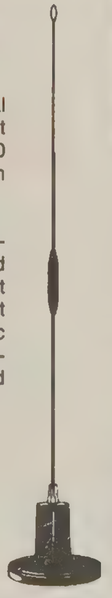
Cushcraft high performance, better-value mobile antennas have sleek black ABS housings with stainless steel springs and tapered stainless whips. All include coax and magnetic mount with 90 pound pull magnet.

Dual Band Mobile CS-270M

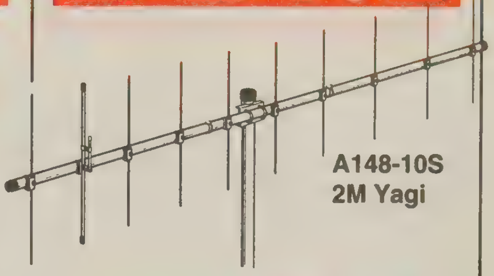
The perfect companion for your dual band transceiver is the **CS-270M.** It offers 3.7 dB gain on 2 meters and 6.0 dB on 70cm in one compact 36.5 inch antenna.

The base has a unique matching network designed on a rugged P.C. board frame. A small phasing coil is insert molded into the antenna rod making it impervious to moisture. The magnetic mount features 90 pound pull, protective mylar pad, low loss feedline and PL-259 connector.

CS50M	50-54 MHz
CS147M	144-174 MHz
CS1147M	144-148 MHz
CS220M	220-225 MHz
CS450M	435-470 MHz
CS1450M	435-450 MHz
CS270M	2m / 70 cm



VHF / UHF Yagis



A148-10S
2M Yagi

70 cm & 2 Meter Yagis

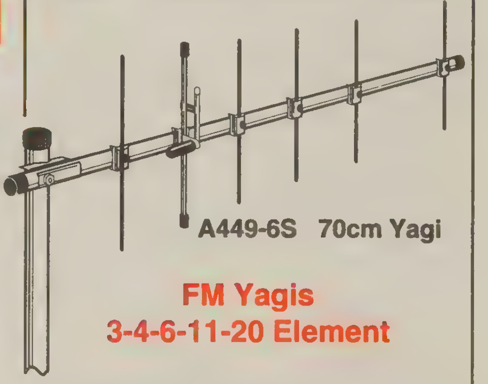
The performance of these antennas will please you! They are lightweight, durable, and can put you on the air in a short time. Good bandwidth, tapered length elements, 50-Ohm no-balun feed with SO-239 connector and protective boot are a few of the features. You'll hear many of these fine antennas still on the air more than 25 years.

A144-7S	7 element	144-146 MHz-	8' boom
A148-10S	10 element	144-148 MHz-	12' boom
A430-11S	11 element	430-435 MHz-	5' boom

6 Meter Yagis

Enjoy the new popularity and exciting contacts on the 6 meter band with one of the S-series Cushcraft Yagis. Computer aided modeling and stainless steel hardware were used by Cushcraft engineers to further optimize the performance of our popular 6 meter Yagis.

A50-3S	3 element	50-54 MHz-	6' boom
A50-5S	5 element	50-54 MHz-	12' boom
A50-6S	6 element	50-54 MHz-	20' boom



A449-6S 70cm Yagi

FM Yagis
3-4-6-11-20 Element

Cushcraft FM Yagis are specifically cut for FM amateur frequencies and vertical polarization. The four and six element models have end brackets for tower or mast side mounting. They feature Reddi-Match driven elements with direct 50 Ohm feed, compact size, good gain, and front-to-back ratio. You can count on quick and easy assembly. **Great antennas for packet operation.**

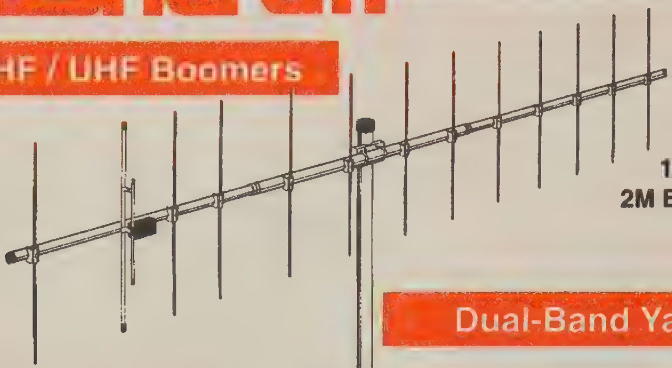
124WB	4 element	144-148 MHz,	4' boom
A148-3S	3 element	146-148 MHz,	3' boom
A148-10S	10 element	144-148 MHz,	12' boom
A148-20S	20 element	144-148 MHz,	12' boom
A449-6S	6 element	440-450 MHz,	3' boom
A449-11S	11 element	440-450 MHz,	4' boom

Vertically and Horizontally Polarized

A148-20T 20 element 144-148 MHz, 11' boom

cushcraft

VHF / UHF Boomers



Cushcraft boomers are so efficient, powerful and successful that they defy comparison. They have established new VHF / UHF distance records and their computer based design has become the standard for others to emulate. All boomers have stainless steel hardware.

The 31' **17B2** has a forward gain of 18.0 dBd, an incredibly clean pattern, and excellent front to back ratio. The UltraMatch feed system with N-connector provides optimum efficiency.

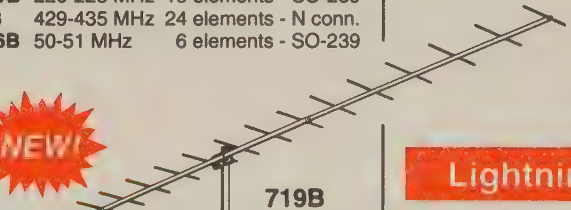
The **13B2** will be your choice for performance across the 2 meter band. Its 15' boom makes it a popular antenna that fits just about anywhere for sideband, packet or FM operations.

For serious 6 meter operators, the 34' **617-6B** has 6 elements and 15.8 dBd gain.

For the 220 MHz band, choose the **224WB** 4 element or **225WB** 15 element for FM simplex and repeater operation. The **220B** is for the serious DX'er.

124WB	144-148 MHz	4 elements - SO-239
13B2	144-148 MHz	13 elements - N conn.
17B2	144-145 MHz	17 elements - N conn.
26B2	144-148 MHz	26 elements - SO-239
220B	220-223 MHz	17 elements - SO-239
224WB	220-225 MHz	4 elements - SO-239
225WB	220-225 MHz	15 elements - SO-239
424B	429-435 MHz	24 elements - N conn.
617-6B	50-51 MHz	6 elements - SO-239

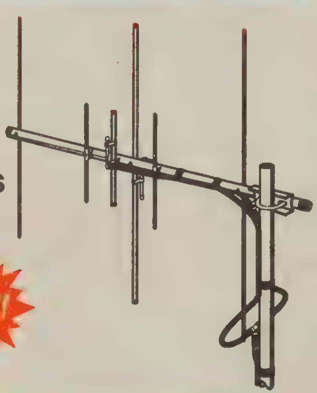
NEW!



19 & 29 Element 70 cm Yagis

Both boomers for the 70 cm band are designed for easy assembly with stainless steel hardware. The feed systems employ a UM4N balun enclosed in a UV stabilized housing. The 13.5-foot-long 719B offers enhanced performance in the 70 cm band with a gain of 15.5 dBd. Mount it vertical for FM or horizontal for CW and sideband. The 729B is the new leader in 70 cm performance with a forward gain of 17.8 dBd. Its modified T-match allows for increased bandwidth over conventional T-matches.

Dual-Band Yagis



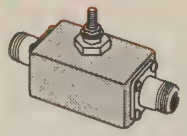
NEW!

A270-6S and A270-10S 2m / 70cm Dual Band

Increase your range by selecting one of the new Cushcraft dual band Yagis. Direct more of your output power when transmitting while reducing interference and increasing signal strength when receiving. Select the antenna for your station depending on the distance of your contacts.

A270-6S	144-148 / 430-450 Mhz 6 element 2.8' boom 7.8 dB
A270-10S	144-148 / 430-450 MHZ 10 element 6.2' boom 10 dB

Lightning Arresters

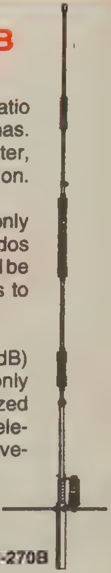


Fast Action Gas Discharge

Protect your valuable equipment while reducing atmospheric noise with these sophisticated new lightning arresters. They feature fast action, replaceable gas discharge elements. Superior design and manufacturing gives better performance with less insertion loss.

LAC4	200 watt with SO-239 connector
LAC4H	2 kW with SO-239 connector
LAC4N	200 watt with N-connector
LAC4NH	2 kW with N-connector
LC2	200 watt replacement cartridge
LC2KW	2 kW replacement cartridge

Ringo Rangers



AR-270 and AR-270B Dual Band

The highest performance-to-size ratio is yours with these rugged antennas. They're the right choice for repeater, simplex, packet or microsat operation.

The **AR-270** "Dual Wonder" is only 3.75 feet high and is perfect for condos and other restrictive QTH's. You will be up and running in the time it takes to tighten two clamps and a PL259.

The **AR-270B** gives high gain (6.5 dB) with a low angle of radiation and is only 7.7 feet high. It is computer optimized with two 5/8 wave-length collinear elements on 2 meters and four 5/8 wave-length elements on 70 cm.

AR-270	144-148 / 430-450 Mhz
AR-270B	144-148 / 430-450 Mhz

ARX-270 Fiberglass Dual-Band

Cushcraft's high performance, fiberglass base antenna has a gain of 9 dB on VHF and 12 dB on UHF. It features non-metallic couplings, thick-wall fiberglass, extruded base clamps, factory tuning, and factory-installed pigtail with choice of UHF or N connector. UPS shippable.

ARX-270 144-148 / 430-450 MHz, 16.5' high

Ringo Ranger II

Ringo Ranger II (**ARX-2B**) has more gain, less wind load, and better mechanical strength than most other 2 meter antennas. You'll find FM repeater or simplex and packet operation more satisfying with this amazing antenna. Three 5/8 wave radiating elements and an adjustable 1/8 wave phasing stub give 7 dB gain over a 1/4 wave whip. The antenna has RF decoupling radials and is DC grounded for lightning protection. There are more Ringo Rangers in use than **ANY OTHER** base station ham antenna.

ARX-2B 135-160 MHz 14' high

Ringo Ranger

A fantastic antenna. The Ringo Ranger should be your antenna where good gain is required, but space does not allow extra height and decoupling radials. 5.5 dB gain.

ARX-2 135-160 MHz 9.3' high

If don't see it here, ask HRO. Cushcraft manufactures an extensive line of antennas.

Cushcraft HF Antennas

Model	Bands	Ele	Max Gn dBd	MaxFB dB	SWR	Turn Rad ft(m)	Longest Ele ft(m)	Boom Lgth ft(m)	Boom Dia in (mm)	MxMst in (mm)	Surface sq ft(sq m)	Ship Wgt lbs	Sugg. List
A3S	10/15/20 meters	3	8	25	1.2:1	15.5 (5.6)	27.75 (8.3)	14 (4.2)	1.5 (38)	2 (51)	4.36 (.47)	27	$496.95
A3WS	12/17meters	3	8	25	1.2:1	14.4 (4.4)	25.1 (7.66)	14 (4.27)	1.5 (3.81)	2 (51)	4.1 (.38)	23	$390.95
A4S	10/15/20 meters	4	8.9	25	1.2:1	18.4 (5.6)	32 (9.75)	18 (5.4)	2.0 (51)	2 (51)	5.5 (.51)	37	$596.95
ASL2010	13.2 - 32 MHz	8	6.4	15-20	1.2:1	19.3(5.9)	38(11.6)	18(5.5)	2.0(5.1)	2(5.1)	10.1(.93)	55(25.5)	$828.00
AV-3	10/15/20 meters	1			1.2:1		14 (4.2)ht		1.375 (35)	1.75 (45)	1.02 (.1)	7	$121.95
AV-5	10/15/20/40/80 meters	1			1.2:1		25 (7.4)ht		1.375 (35)	1.75 (45)	1.89 (.19)	10	$218.95
AP-8A	10/12/15/17/20/30/40/80 meters	1			1.2:1		26 (7.92)ht		1.375 (35)	1.75 (45)	1.7 (.16)	10	$273.95
AV-80	80 meters	1			1.2:1		18(5.5)ht			1.75 (45)	4.2(.42)	21(9.1)	$444.00
R-5	10/12/15/17/20 meters	1	3 *		1.2:1		17 (5.2)ht		1.75 (44)	1.75 (45)	1.4 (.13)	8	$370.00
R-7	10/12/15/17/20/30/40 meters	1	3 *		1.2:1		22.5 (6.9)ht		1.75(44)	1.75	2.3 (.2)	13	$510.00
AR-10	10 meters	1	3.75		1.2:1		17.6 (5.3)ht		1.25(32)	1.25(32)	1.68 (.17)	4	$70.95
20-4CD	20 meters	4	10	30	1.2:1	23.75 (7.2)	36.1 (11.0)	32 (9.75)	2.13 (54)	2 (51)	8.1 (.75)	55	$625.95
20-3CD	20 meters	3	8	30	1.2:1	20 (6.1)	35.9 (10.9)	20 (6.1)	2.0 (51)	2 (51)	5.5 (.51)	30	$437.95
40-2CD	40 meters	2	5.5	20	1.2:1	23.93 (7.29)	43 (12.9)	23 (6.9)	2.13 (54)	2 (51)	6.38 (.57)	44	$625.95
TEN-3	10 meters	3	8	25	1.2:1	10 (3.01)	17.8 (5.43)	8 (2.44)	1.38(35)	2 (51)	2.0 (.2)	10	$150.95
10-3CD	10 meters	3	8	30	1.2:1	10 (3.05)	17.66 (5.38)	10 (3.1)	1.63 (41)	2 (51)	2.3 (.21)	11	$232.95
10-4CD	10 meters	4	10	30	1.2:1	11.5 (3.5)	17.58 (5.34)	16 (5.18)	1.75 (44)	2 (51)	3.1 (.29)	18	$299.95
15-4CD	15 meters	4	10	30	1.2:1	15.5 (4.72)	23.33 (7.11)	20 (6.10)	2.0 (51)	2 (51)	4.5 (.42)	25	$353.95
15-3CD	15 meters	3	8	30	1.2:1	13.5 (4.11)	23.26 (7.06)	14 (4.27)	2.0 (51)	2 (51)	3.4 (.32)	20	$304.95
D3W	12/17/30 meters	1			1.2:1	17 (5.18)	34(10.36)			2 (51)	.9 (.08)	11	$248.95
D3	10/15/20 meters	1			1.2:1	13 (3.96)	25.7 (7.83)			2 (51)	.9 (.08)	9	$243.95
D4	10/15/20/40 meters	1			1.2:1	18 (2.49)	35.8 (10.91)			2 (51)	1.3 (.12)	13	$330.95
D40	40 meters	1			1.2:1	21 (6.40)	42.25 (12.87)			2 (51)	1.3 (.12)	12	$296.95

ht= height * dBi

Call for HRO Discount Prices

Cushcraft VHF / UHF Antennas

Model	Bands	Ele	Max Gain dBd	Max F/B dB	Polarization	Turn Rad ft (m)	Long Ele ft (m)	Boom Lg ft (m)	MxMst in (cm)	Surface sq ft (sq	Ship Wgt lbs	Sugg. List
124-WB *	144-148	4	10.2	24	Either	4 (1.2)	3.4 (1.0)	4 (1.2)	2.0 (5.0)	.34 (.03)	3	$72.95
13B2	144-148	13	15.8	26	Either	8.9 (2.7)	3.4 (1.0)	15 (4.6)	2.0 (5.0)	1.8 (.17)	7	$142.95
224-WB *	220-225	4	10.2	24	Either	3 (.9)	2.2 (.67)	3 (.9)	2.0 (5.0)	.23 (.02)	2	$67.95
225-WB	220-225	15	15.5	24	Either	5.8 (1.8)	2.2 (.67)	10 (3)	2.0 (5.0)	.95 (.09)	6	$148.95
26B2	144-148	26	18.8	26	Vertical	10.4 (3.2)	3.4 (1.0)	15 (4.6)	2.0 (5.0)	4.8 (.5)	22	$405.95
A148-3S	2 m	3	7.8	25	Either	2.8 (.85)	3.3 (1.0)	2.8 (.85)	2.0 (5.0)	.27 (.02)	1.5	$46.95
A148-10S	2 m	10	13.2	24	Either	6 (1.8)	3.3 (1.0)	12 (3.6)	2.0 (5.0)	1.21 (.11)	6	$85.95
A148-20S	2 m	20	16.2	24	Either	6.6 (2.1)	3.3 (1.0)	12 (3.6)	2.0 (5.0)	2.8 (.37)	15	$232.95
A148-20T	2 m	10	11.1	20	Dual	6.8 (2.0)	3.3 (1.0)	10.8 (3.2)	1.5 (3.8)	1.42 (.13)	7	$118.95
17B2	144-145	17	18	26	Horizontal	17.3 (5.3)	3.4(1.0)	31 (9.5)	2.0 (5.0)	3.9 (.4)	16	$246.95
220-B	220-223	17	17.2	30	Horizontal	9 (2.6)	1.1 (.34)	19 (5.8)	2.0 (5.0)	2.6 (.24)	11	$181.00
424-B	424-435	24	18.2	30	Horizontal	10 (3.1)	1.1 (.34)	17.4 (5.3)	2.0 (5.0)	2.3 (.21)	5	$155.00
719-B	430-450	19	15.5	25	Either	7.25 (2.2)	1.15 (.34)	13.5 (4.1)	2 (5.1)	1.2 (.11)	5.6(2.55)	$142.00
729-B	430-440	29	17.8	25	Either	12.5 (3.8)	1.15(.34)	22.2(6.75)	2 (5.1)	2.2 (.21)	8.6 (3.9)	$220.00
A449-6S*	440-450	6	10.5	18	Either	2.9 (.88)	1.1 (.34)	2.9 (.88)	2.0 (5.0)	.3 (.03)	3	$59.95
A449-11S	440-450	11	13.2	20	Either	2.8 (.8)	1.1 (.34)	4.2 (1.4)	2.0 (5.0)	.39 (.04)	4	$83.95
A50-3S	6 m	3	8	20	Horizontal	6 (1.8)	9.8 (3.0)	6.0 (1.8)	2.0 (5.0)	1.8 (.17)	7	$110.95
A50-5S	6 m	5	10.5	24	Horizontal	7.5 (2.3)	9.8 (3.0)	12 (3.7)	2.0 (5.0)	2.7 (.25)	11	$161.95
A50-6S	6m	6	11.6	26	Horizontal	11 (3.4)	9.8 (3.0)	20 (6.1)	2.0 (5.0)	4.5 (.4)	18	$299.95
617-6B	6 m	6	14	30	Horizontal	17.7 (5.4)	9.5 (2.9)	34 (10.4)	2.0 (5.0)	4.8 (.45)	26	$399.95
AFM-4DA	144-148	4	6/9 dB		Vertical		23 (7) ht		2.0 (5.0)	2.54 (.24)	7	$148.95
AFM-24DA	220-225	4	6/9 dB		Vertical		15 (4.6) ht		2.0 (5.0)	1.85 (.17)	6	$131.95
AFM-44DA	435-450	4	6/9 dB		Vertical		8 (2.4) ht		2.0 (5.0)	1.13 (.10)	5	$114.95
AR-2	135-160	1	3.75 dB		Vertical		3.9 (1.2) ht		1.25 (3.2)	.21 (.02)	2	$49.95
ARX-2	137-160	1	4.50 dB		Vertical		9.3(2.8) ht		1.25 (3.2)	.33 (.03)	4	$60.95
ARX-2B	134-164	1	7.00 dB		Vertical		14 (4.2) ht		1.25 (3.2)	.5 (.046)	6	$72.95
ARX-220B	220-225	1	7.00 dB		Vertical		9.3 (2.8) ht		1.25 (3.2)	.3 (.03)	5	$72.95
ARX-6	50-54	1	5.5 dB		Vertical		24 (7.3)ht		1.75 (4.4)	1.9 (.18)	7.5 (3.4)	$252.00
AR-270	144-148 440-450	1	3.7 5.5		Vertical		3.75 (1.13)ht		2.0 (5.0)	.27 (0.03)	2	$87.95
AR-270B	144-148 440-450	1	5.5 7.5		Vertical		7.7 (2.3)ht		2.0 (5.0)	.47 (0.05)	3	$125.00
ARX-270N **ARX-270U**	144-148 430-450	1	9.0 12.0		Vertical		16.5 (5.07)ht		2.0 (5.0)	.95 (0.09)	5	$273.95
A270-6S	144-148 430-450	3	7.8 7.8	20 18	Either	2.8 (.85)	3.4 (1.04)	2.8 (.85)	2 (.51)	.3 (.02)	1.7	$73.00
A270-10S*	144-148 440-450	5 5	10.0 10.0	20.0 18.0	Either	6 (1.8)	40.3 (102.4)	6.17 (1.9)	2.0 (5.0)	.725 (.07)	2	$99.95
ARX-450B	435-450	1	7.00 dB		Vertical		5 (1.5) ht		1.0 (2.5)	.2 (.02)	1	$72.95
AR-6	6m	1	3.75 dB		Vertical		10.1 (3.1)ht		1.25 (3.2)	.37 (.03)	3	$70.95
CS-270M **Mobile**	144-148 440-450	1	3.70 dB 6.00 dB		Vertical Mobile		34 inches (.88)				5	$88.95

* End mount Antenna ht= antenna height

HUSTLER®

Multi-band HF Verticals

6-BTV / 5-BTV / 4-BTV

Models 6-BTV (10, 15, 20, 30, 40, 75 / 80 meters), 5-BTV (10-80 meters), and 4-BTV (10-40 meters) for base stations. All of these vertical antennas allow full legal limit on SSB or CW. The antennas are constructed of 1 1/4" heavy wall, high strength aluminum. Feed with 50 ohm coax. VSWR 2:1 or better at band edges on 10-40 meters and up to 100 kHz on 75 / 80 meters.

30-MTK

Add the 30 meter band to the 4-BTV or 5-BTV with the 30-MTK. This will provide full band coverage of the 30 meter band and will not affect normal operation of the other bands. The modification is easy to install with all hardware required included. **HRO Price $41.95**

2m Verticals

G6-144B

G7-144

The G7-144 is designed for fixed station or repeater operation. The antenna provides 7dB gain with an extremely low angle of radiation. It is constructed of high strength aluminum and fiberglass using stacked 5/8 wave radiators. Uses a type "N" connector.

G6-144B

The G6-144B is a 6dB gain antenna for base or repeater use. The antenna is totally self supporting and is constructed of high-strength aluminum. Uses an SO-239 connector.

220 & 440 Verticals

G7-220

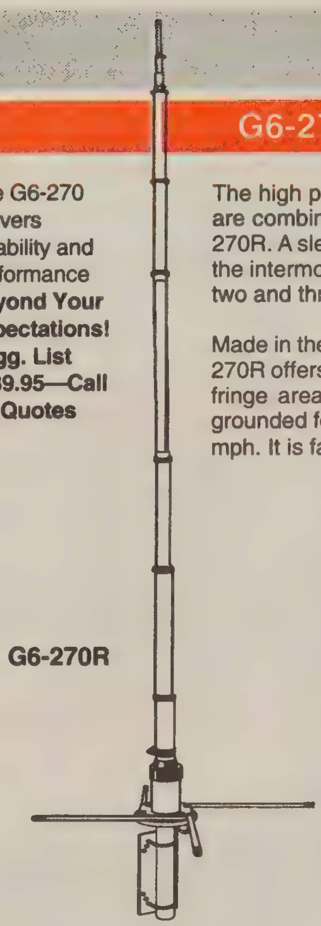
The G7-220 is of similar design and construction as the 2 meter G7-144. It is designed for base or repeater operation, provides 7dB of gain and is constructed of high-strength aluminum and fiberglass. Uses a type "N" connector.

G6-440

The G6-440 is a 6dB gain antenna for base or repeater usage for the 440 MHz band. It is provided with the vertical component assembled. The antenna is constructed from high-strength aluminum and fiberglass. Uses a type "N" connector.

G6-270R Dual Band

The G6-270 delivers reliability and performance **Beyond Your Expectations! Sugg. List $189.95—Call for Quotes**


G6-270R

The high performance of our well known G6-144 and G6-440 are combined in our 2 m / 440 dual band vertical, model G6-270R. A sleek, one piece tapered fiberglass radome eliminates the intermodulation and mechanical problems associated with two and three piece UHF radome designs.

Made in the U.S.A. of high quality American materials, the G6-270R offers 6 dBd gain (8.1 dBi) on both bands for outstanding fringe area performance. The antenna is shunt-fed and DC grounded for lightning protection and will survive winds to 100 mph. It is factory tuned for quick and easy installation.

Electrical

Max. Power:	200 watts
Gain:	6 dBd VHF 6 dBd UHF
Bandwidth:	3 MHz VHF 10 MHz UHF
Design:	5/8 over 5/8 VHF 4 x 5/8 UHF Shunt-fed D.C. Ground
Termination:	Type N female

Mechanical

Length:	100 inches
Weight:	6 lbs
Wind Survival:	100 mph
Mounting:	Hardware included for 1-1/2" mast. Mounting plate will accept 2" U-bolts (U-bolts not included)

Hustler Antennas

Model	Bands	M x Gn	VSWR	Radial lgth in (mm)	Height ft (m)	Boom Dia in (mm)	Max Mst in (mm)	Wind load lbs (kg)	Ship Wgt lbs (kg)	Sugg. List
6-BTV	10-30-80 m	-	1.2:1	20.3 (506)	24 (7.2)	1.3 (31.3)	1.5 (38.1)	31 (14.1)	17	$209.95
5-BTV	10 to 80 m	-	1.2:1	20.3 (506)	25 (7.5)	1.8 (43.8)	1.5 (38.1)	29 (13.2)	17	$179.95
4-BTV	10 to 40 m	-	1.2:1	14.8 (369)	21.4 (6.4	1.3 (31.3)	1.5 (38.1)	24 (10.9)	15	$134.95
G7-144*	2 m	7 dB	1.5:1	-	15.3 (4.6	-	1.8 (43.8)	26 (11.8)	10	$189.95
G6-144B	2 m	6 dB	1.15:1	-	9.8 (2.9)	-	1.8 (43.8)	26 (11.8)	7	$129.95
G7-220*	220 MHz	7 dB	1.2:1	-	10.2 (3.0	-	1.8 (43.8)	26 (11.8)	7	$189.95
G6-440*	440 MHz	6 dB	2.1:1	-	7.3 (2.2)	-	2.0 (50.8)	22 (10.0)	5	$169.95

* Type "N" Connector

Hustler VHF / UHF Mobile Antennas

Model	Band	Max Gain	SWR	Power	Length ft (m)	Weight lbs	HRO Price
RX-440	440 MHz	5.2 dB	1.2:1	100 W	2.3 (.72)	3	$24.95
CGT-144	2 m	5.2 dB	1.15:1	200 W	7.1 (2.1)	2	$51.95
RX-2	2m	3.4dB	1.5:1	100 W	4.2(1.3)	3	$24.95
FX-2	2m	3.4dB	1.5:1	100 W	4.2(1.3)	3	$33.95
SF-2	2 m	3.4 dB	1.2:1	100 W	4.2 (1.3)	1	$14.95
UGM	140-500 MHz	Unity				1	$21.95
SF-220	220 MHz	3.4 dB	1.2:1	100 W	2.6 (.78)	1	$14.95

Call Toll-Free For Discount Prices on Hustler Products

VHF / UHF Mobiles

Collinear

The CG-144 and CG-220 are 5.2dB gain collinear antennas for 2m and 220 MHz respectively. These antennas mount with 3/8"x24 thread which will fit the standard Huster mounts. The CGT-144 and CGT-220 are supplied with a heavy duty trunk mount, 17' of coax and PL-259 connector.

5/8 Wave

Hustler manufactures two series of mobile antennas for 2m and 220 MHz and one for 440 MHz. The FX series comes with a heavy duty magnetic mount and the RX series has a standard duty mount. The antennas are base loaded with a 5/8 wave whip. The FX-2, FX-220, RX-2, RX-220 and RX-440 have black bases and chrome whips.

SF-2 / SF-220

These two antennas are for 2m and 220 MHz respectively. Each is a base-loaded 5/8 wave antenna. These antennas will mount to all the Hustler mounts.

UGM

A magnetic-mount antenna for the traveller. Trim it to operate as a 1/4 wave on 2m, 220 or 440. The mount is supplied with 7' of mini-coax and a BNC connector installed. Attaches directly to most handhelds. The antenna has a chrome base and stainless steel whip.

HF Resonators

There are two types of resonators for HF operation. The **standard** units are rated to 400 watts SSB while the **supers** are rated at 1 KW SSB. In addition to the power differences, the usable band width of the Super resonators is 100 percent wider on some bands. See the resonator table below for details.

Mounting HF Mobiles

The HF resonators described require some consideration when mounting.

Mount

A bumper (BM-1) or ball type (C32, SSM-1 or SSM-2) mount is required. Magnetic or trunk type mounts will not hold the weight or wind load.

Mast

All of the resonators must be mounted on top of one of the Hustler masts (MO-1, MO-2, MO-3 or MO-4). The MO-1 and MO-2 hinge to allow for travel or low clearances. The MO-1 is for deck or fender mounting and folds at 15" above the base. The MO-2 is for bumper mounting and folds at 27" above the base. The MO-3 is a fixed length mast for use where it will not be necessary to fold over the antenna.

Hustler has a new mast, the **MO-4** for installations requiring a short mast. The mast is just 22 inches tall. Use standard resonators and whips on 40 and 75m. Use standard resonators on 10, 15 and 20 meters with the new whips provided with the MO-4.

Hustler Resonators

Model	Type	Band	Power SSB	Bandwidth 2:1 SWR	Weight lbs	HRO Price
RM-10	Standard	10 m	400 W	150-250 KHz	0.41	$15.95
RM-11	Standard	11 m	400 W	150-250 KHz	0.41	$15.95
RM-12	Standard	12 m	400 W	90-120 KHz	0.41	$15.95
RM-15	Standard	15 m	400 W	100-150 KHz	0.42	$15.95
RM-17	Standard	17 m	400 W	120-150 KHz	0.44	$21.95
RM-20	Standard	20 m	400 W	80-100 KHz	0.46	$21.95
RM-30	Standard	30 m	400 W	50-60 KHz	0.84	$24.95
RM-40	Standard	40 m	400 W	40-50 KHz	0.84	$24.95
RM-75	Standard	75 m	400 W	25-30 KHz	1.05	$26.95
RM-80	Standard	80 m	400 W	25-30 KHz	1.05	$26.95
RM-10-S	Super	10 m	1 kW	250-400 KHz	1	$23.95
RM-15-S	Super	15 m	1 kW	150-200 KHz	1.2	$24.95
RM-20-S	Super	20 m	1 kW	100-150 KHz	1.25	$28.95
RM-40-S	Super	40 m	1 kW	50-80 KHz	1.8	$35.95
RM-75-S	Super	75 m	1 kW	50-60 KHz	2.1	$49.95
RM-80-S	Super	80 m	1 kW	50-60 KHz	2.1	$49.95

Mounting Accessories

Trunk Mounts

Three trunk mounts are available (HLM, HOT and TLM). All bases accommodate the 3/8"x24 thread and come with 17' of low-loss coax with connectors installed. The mounts are for use with VHF and UHF antennas. Do **NOT** use with the HF mobile antennas.

The **HLM** is specifically for hatch and slanted back vehicles. It has a built-in 180 degree adjustable swivel. The **HOT** is an easy on/off base–just spin the knob. The mount cannot be removed while the trunk is closed. It also features a 180-degree swivel. The **TLM** requires no holes to install. It mounts on flat, horizontal surfaces. The **RVM** is for recreational vehicles.

Bumper Mount

Use the **BM-1** bumper type mount with all Hustler mobile antennas including HF. It uses two "J" bolts and a stainless steel strap that will fit bumpers up to 18". It will not fit the molded, plastic bumpers found on some vehicles. The mount comes with a stainless steel ball. Use the L14-144 (12 foot) or L14-240 (20 foot) coax sets to attach directly to the bottom of the ball mount.

Other Accessories

C-32	Chrome Plated Ball Mount	**$11.95**
SSM-1	Ball Mount and Spring	**$46.95**
SSM-2	Ball Mount	**$26.95**
SSM-3	Stainless Steel Spring	**$24.95**
RSS-2	Resonator Spring	**$9.95**
QD-2	Quick Disconnect	**$19.95**

Hustler Mounts

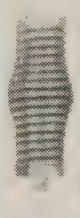
Model	Base Thread	Coax ft (m)	Swival	Weight lb	HRO Price
BM-1	3/8" x 24	optional	180°	2	$19.95
HOT	3/8" x 24	17 (5.1)	180°	1.9	$29.95
TLM	3/8" x 24	17 (5.1)		1.9	$20.95
HLM	3/8" x 24	17 (5.1)	180°	1.7	$22.95
RVM	3/8" x 24	17 (5.1)	180°	1.9	$20.95

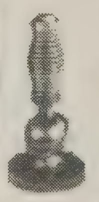
Mobile Mounts

C-32

Hustler has a collection of mounts and accessories for attaching your antennas to your vehicle. The most common are described below.

C-32	Chrome-plated ball mount
C-30	Chrome-plated spring
C-29	Stainless steel spring
SSM-1	Professional ball mount and spring
SSM-2	Ball mount
SSM-3	Stainless steel spring
L-14-144	Coax lead 12', PL-259 & lugs for Hustler mounts
L-14-240	Coax lead 20', PL-259 & lugs for Hustler mounts


C-30


SSM-1

DIAMOND ANTENNA

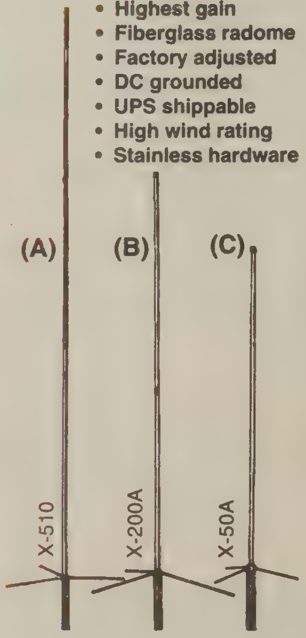
The Standard by Which All Others are Judged

Diamond Base Station Antennas

Model	Bands	Gain, dB	Watts	Conn.	WT (lbs)	Lth (ft)	MPH	Fig	List Prices
DP-GH62	6m	6	200	UHF	7	21	78	B	$149.95
F-22A	2 m	6.7	200	UHF	5	10.5	112	B	$109.95
F-23A	2 m	7.8	200	UHF	8	15	90	A	$159.95
F-142A	1 1/4 m	5.5	200	UHF	2	6	110	C	$124.95
F-718A*	70 cm	11.5	250	N	5	15	90	A	$229.95
F-1230A	23 cm	13.5	100	N	5	10.5	90	B	$159.95
U300A	70 cm/23 cm	8.6/13.2	100	N	4	8.3	110	C	$159.95
U5000	2m/70/23cm	4.5/8.3/11.7	150	N	3	6	135	C	$149.95
V2000A	6m/2m/70cm	2.1/6.2/8.4	150	UHF	4	8.3	110	B	$149.95
X-50A	2 m/70 cm	4.5/7.2	200	UHF	3	5.6	135	C	$114.95
X-200A	2 m/70 cm	6.0/8.0	200	UHF	4	8.3	112	B	$149.95
X-300A	2 m/70 cm	6.5/9.0	200	UHF	4	10.5	90	B	$169.95
X-510NA	2 m/70 cm	8.3/11.7	200	N	5	17.2	90	A	$199.95
X-510MA	2 m/70 cm	8.3/11.7	200	UHF	5	17.2	90	A	$199.95
X-500HNA	2 m/70 cm	8.3/11.7	200	N	7	17.8	90+	A	$249.95
X-700HA	2 m/70 cm	9.3/13.0	200	UHF	12	24	90	-	$399.95
X-2200	2 m/1 1/4 m	6.0/7.8	200	UHF	4	10.6	112	B	$169.95
X-3200A#	2m/1 1/4m/70cm	6.0/7.8/8.0	100@	UHF	4	10	112	B	$219.95
X-6000A	2m/70/23cm	6.5/9.0/10.0	100	N	5	10	112	B	$199.95

All base antennas grounded for lightning protection #2m: 146-148 MHz
Factory adjusted for American Amateur Bands - No tuning required
* F-718A — 440-450; F718J – 430-440; F718L – 420-430
@ 100 wwatts on 2m, 200 watts on 1 1/4m and 70cm

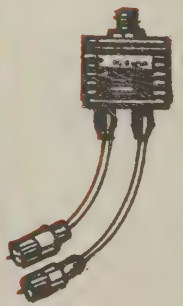
- Wide-band performance
- Highest gain
- Fiberglass radome
- Factory adjusted
- DC grounded
- UPS shippable
- High wind rating
- Stainless hardware

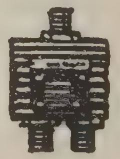


Diamond Duplexers and Triplexers

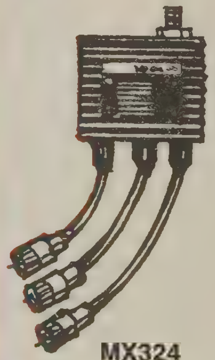
Model	Port	Freq MHz	CW Watts	PEP Watts	Loss dB	Isol . dB	MIX Conn.	Port Conn.	HRO Price
MX-37N	LPF HPF	1.6 - 470 900 - 1300	100 50		.25 .25	45 45	N-Jack (F)	N-Male/12" cable N-Male/12" cable	$69.95
MX-72D	LPF HPF	1.6-30 140-150 440-460	400 150 100	1KW 400 250	.1 .1 .2	60 60 60	SO-239	PL-259/no cable PL-259/no cable	$54.95
MX-72DN	LPF HPF	1.6-30 140-150 440-460	400 150 100	1KW 400 250	.1 .1 .2	60 60 60	SO-239	PL-259/no cable N-Plug/no cable	$62.95
MX-72H	LPF HPF	1.6-30 140-150 440-460	400 150 100	1KW 400 250	.1 .1 .2	60 60 60	SO-239	PL-259/12" cable PL-259/12" cable	$59.95
MX-72N	LPF HPF	1.6-30 140-150 440-460	400 150 100	1KW 400 250	.1 .1 .1	60 60 60	SO-239	PL-25912" cable N-Male/12" cable	$59.95
MX-214	LPF HPF	140-150 220-225	150 100	400 250	.3 .4	45 45	SO-239	PL-259/12" cable PL-259/12" cable	$73.95
MX-324	BPF HPF	1.6-60 220-225 400-550		800 600 500	.3 .4 .4	40 40 40	SO-239	PL-259/12" cable PL-259/12" cable PL-259/12" cable	$99.95
MX-2000	LPF BPF HPF	1.6-60 110-170 300-950		800 800 500	.15 .20 .25	60 60 60	SO-239	PL-259/12" cable PL-259/12" cable PL-259/12" cable	$99.95
MX-2000∂	LPF BPF HPF	1.6-60 110-170 300-950		800 800 500	.15 .20 .25	60 60 60	SO-239	PL-259/No cable PL-259/No cable PL-259/No cable	$99.95
MX-3000	LPF BPF HPF	1.6-160 350-500 850-1300		800 400 200	.15 .25 .30	55 55 55	N-Jack(F)	PL-259/12" cable PL-259/12" cable N-male/12" cable	$99.95
MX-3000D	LPF BPF HPF	1.6-160 350-500 850-1300		800 400 200	.15 .25 .30	55 55 55	N-Jack(F)	PL-259/No cable PL-259/No cable N-male/No cable	$99.95
MX-3000N	LPF BPF HPF	1.6-160 350-500 850-1300		800 400 200	.20 .30 .40	55 55 55	N-Jack(F)	PL-259/12" cable N-Male/12" cable N-male/12" cable	$99.95

MX-37N
MX-72H
MX-72N
MX-214

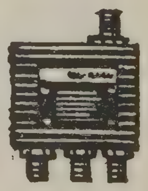




MX-72D
MX-72DN



MX324
MX-2000
MX-3000
MX-3000N



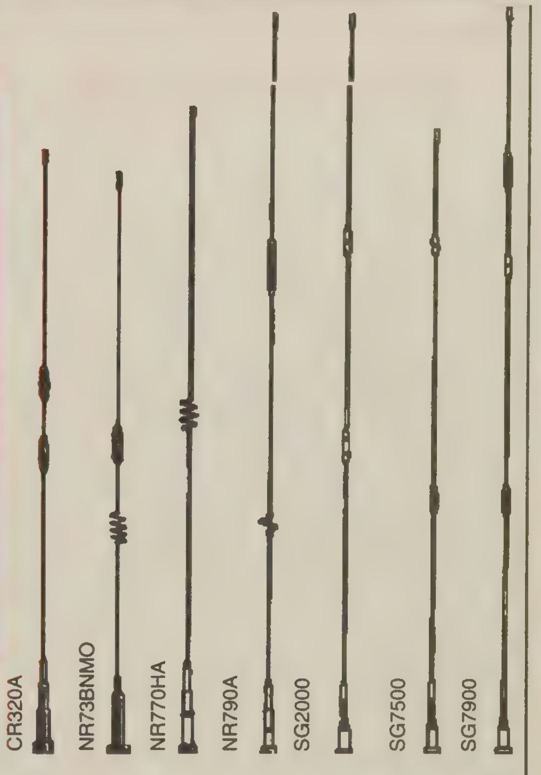
MX-3000D

ANTENNAS & ACCESSORIES

Diamond Mobile Antennas

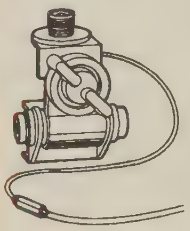
Model	Bands	Gain/dB	Watts	Mount	Lth/In	HRO Price
NR-124	23 cm	8.4	100	N	25	$66.95
NR-140A	1 -1/4 m	4	150	UHF	37	$54.95
SG2000	2 m	5.2	150	UHF	62	$89.95
CR-214S*	2 m/1 -1/4 m	2.1/3.4	150	UHF	37	$62.95
CR-224A	2 m/1 -1/4 m	5.0/6.0	200	UHF	68	$99.95
CR-320A#*	2 m/1 -1/4 m/70cm	2.1/3.8/5.5	100@	UHF	36	$98.95
NR-72BNMO#*	2 m/70 cm	2.1/2.1	100	NMO	14	$46.95
NR-73BNMO#	2 m/70 cm	2.1/5.3	100	NMO	33	$62.95
NR-770HA	2 m/70 cm	3.0/5.5	200	UHF	40	$62.95
NR-770HNMO	2 m/70 cm	3.0/5.5	200	NMO	41	$64.95
NR-770R	2 m/70 cm	3.0/5.5	200	UHF	39	$59.95
NR-790A	2 m/70 cm	4.5/7.2	120	UHF	58	$94.95
NR-2000NA	2 m/70/23 cm	3.1/6.3/9.7	100	N	39	$92.95
SG6000NMO*	6 m	2.15	150	NMO	39	
SG7000*	2 m/70 cm	2.1/3.8	100	UHF	18	$73.95
SG7200NMO	2 m/70 cm	3.2/5.7	150	NMO	38	$88.95
SG7500	2 m/70 cm	3.5/6.0	150	UHF	41	$86.95
SG7900	2 m/70 cm	5.0/7.6	150	UHF	62	$109.95

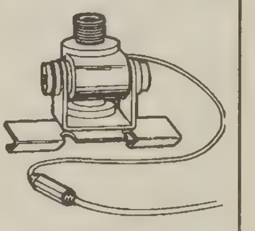
Factory adjusted for American amateur bands, no tuning required.
SG and NR antennas require no ground system.
Mobile antennas have foldover feature with spring loaded hinge (except NR770SA).
Magnetic mount not recommended for antennas over 45".
# Black Anodized finish @ 100 watts on 1-1/4m, 200 watts on 2m and 70cm.
* Magnetic Mounts not recommended. Vehicle Grouind required

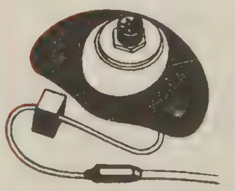


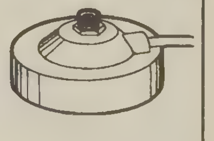
Diamond Mobile Mounts

Model	Description	HRO Price
SPM35	UHF type base on heavy 1.5 lb/4" magnetic, 13' 5mm coax/PL-259.	$45.95
DPK-4NM-N	Type N on Magnet. Similar to DP- SPM/5D. N-Plug. Good to 1300 MHz.	$59.95
K200KM	Black Trunk/Hatchback mount with fold over feature. 16.5' RG-58A/U w/PL-259	$35.95
K300M	Deluxe rain gutter mount. Black, Adjustable position. 10' cable.	$83.95
K300KM	Deluxe rain gutter mount. Black, adjustable position. 16.5" RG-58A/U w/PL-259	CALL
K400K-3/8M	Basic K400 with fittings for antennas with 3/8-24 thread base w/ cable	$78.95
K400M	Deluxe mount with UHF type base. 16.5 feet RG-188 and low loss 5 mm cable.	$82.95
K400NMO	Deluxe mount withNMO type base. 16.5 feet RG-58/U with PL-259	CALL
K540KM	Deluxe Mirror/Luggage rack mount. Black, adjustable. 16.5' RG58A/U w PL259	$67.95
K550KM	Deluxe mini van luggage rack mount. Black, adjustable. 16.5' RG58A/U w PL259	CALL
K600M	Tilt angle (0-9 degrees) trunk mount. Black. RG-188 and low loss 5 mm cable.	$72.95
K600N	Same as K600M but with type-N connections	$78.95
NMO/UHF	Adapter for imported antennas PL-259 to Motorola NMO base. Max 45" anten	$23.95
FE-5M	Deluxe cable assembly. 16.5 feet RG-188 and low loss cable. UHF connectors.	$40.95


K300M


K400M


K600M


DP-SPM/5D

Diamond Receiving / Scanner Antennas

Model	Description	HRO Price
RH-77CA	High gain 2m/70cm dual band HT antenna. Receive range to 900 MHZ. BNC	$34.95
RH-951	High gain 2m/70cm/23cm tri-band HT antenna. BNC (Wide band receive)	$52.95
RH-205	2M HT antenna, telescopic, 5/8 fully eextended, 47.5"; 1/4 rettracted, 9"	$27.95
D-130J	Wideband discone 25-1300 MHz. 200 W transmit 50-1300 MHz. No cable.	$99.95

Order Toll-Free from Canada.

Diamond Accessories

Model	Description	HRO Price
CX-210A	Heavy duty wideband coax switch, DC-1000 MHz. 1.5 kW, SO-239 connecto	$51.97
CX-210N	Heavy duty wideband coax switch, DC-1500 MHz. 1.5 kW, N connector.	$93.95

Frequencies

Band	Frequency
6 m	50 - 54 MHz
2 m	144 - 148 MHz
1-1/4 m	222 - 225 MHz
70 cm	440 - 450 MHz
23 cm	1240 - 1300 MHz

Connector Types

Type	Description
UHF	SO-239/PL-259
NMO	Motorola Type

Larsen

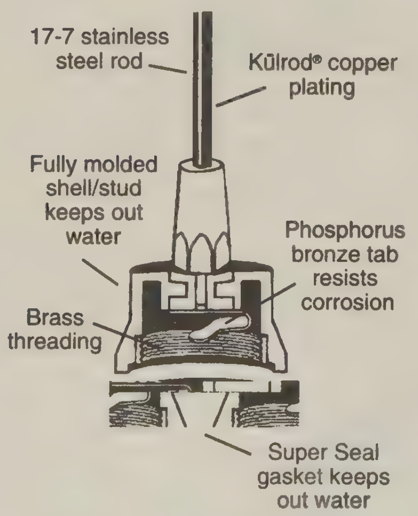
NMO Series

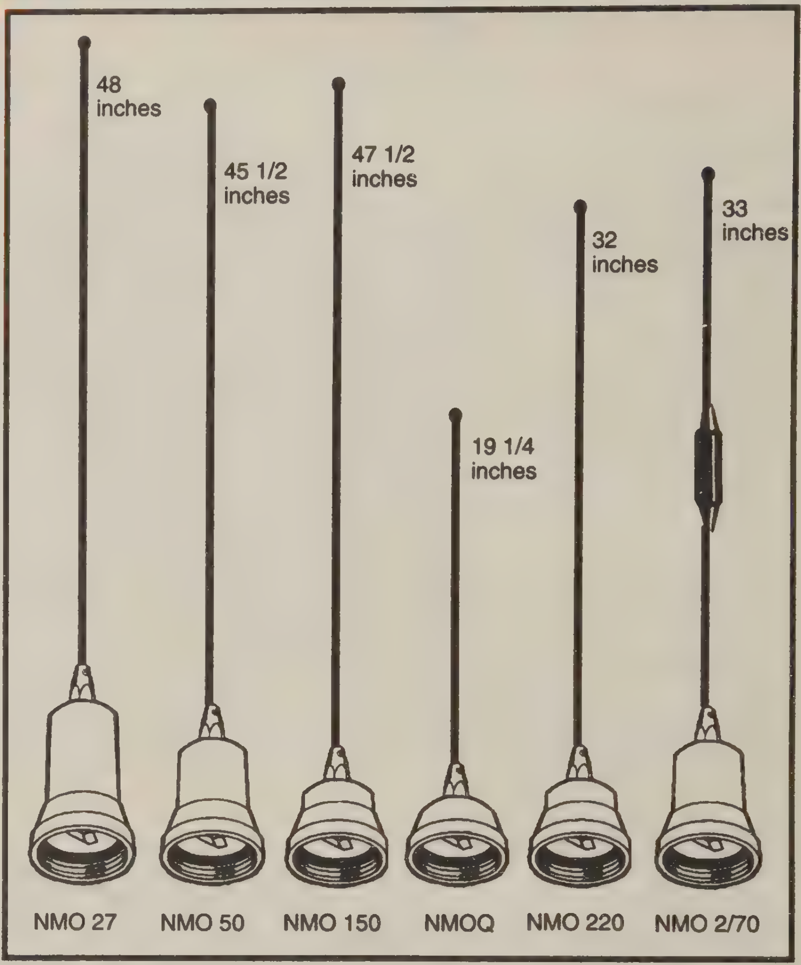
Kūlrod® Mobile Antennas

All Larsen mobile antennas meet the industry's most demanding specs for electrical efficiency and mechanical durability. The result is greater transmit range over many years of service. In addition to the popular Motorola 3/4" (NMO) mounts shown here, mobile antennas for the Larsen Mount (LM) and PO Mount (PO) are excellent choices for amateur use.

- VSWR at 1.5 to 1 or less.
- Greater transmit range.
- Rated 200 watts output.
- 3-year No-Nonsense Warranty™.
- 3/4" Motorola-style mounts.
- Colors: Black coil base/Chrome or all black whip.
- Mounts: NMO K premium quality rooftop.
  NMO MM mag mount, 90# pull strength.
  NMO TLM heavy duty trunk lid.
  NMO TMB electropolished trunk gutter bracket.
- Made in USA.

Model NMO 440


17-7 stainless steel rod
Kūlrod® copper plating
Fully molded shell/stud keeps out water
Phosphorus bronze tab resists corrosion
Brass threading
Super Seal gasket keeps out water


48 inches
45 1/2 inches
47 1/2 inches
19 1/4 inches
32 inches
33 inches
NMO 27
NMO 50
NMO 150
NMOQ
NMO 220
NMO 2/70

Model NMO 27 (10m)

Band	27-30 MHz
Electrical	1/4 wave, loaded
Gain	Unity

Model NMO 50 (6m)

Band	45-54 MHz
Electrical	1/4 wave, loaded
Gain	Unity

Model NMO 150 (2m)

Band	144-174 MHz
Electrical	5/8 wave
Gain	3 dBd

Model NMOQ

Band	144-448 MHz
Electrical	1/4 wave
Gain	Unity

Model LMC 2/70 B (2m/70cm Dual band) NEW!

LMC270 B KUnity 2/27 Dual Band Black kit

LMC 2/70 B Unity, 2m/70cm, open coil, Black

Model NMO 220 (1.25m)

Band	220-225 MHz
Electrical	5/8 wave
Gain	Unity

Model NMO 440 (70cm)

Band	440-460 MHz
Electrical	5/8 over 1/2
Gain	4.5 dBd

Model NMO 2/70 (2m/70cm Dual band)

Band	144-148; 442-448 MHz
Electrical	5/8 wave VHF Collinear UHF
Gain	4 dBd UHF 2.4 dBd VHF

Model NMO 2/70 SH (2m/70cm Dual band) NEW!

NMO 2/70 SH K Dual Band, short with cable kit

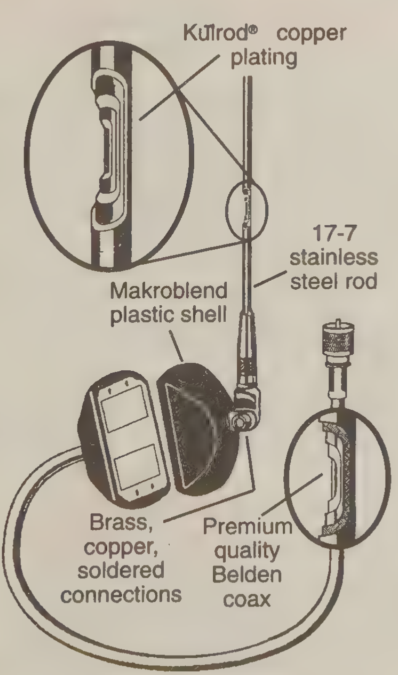
NMO 2/70 SH Unity, 2m/70cm, coil, spring

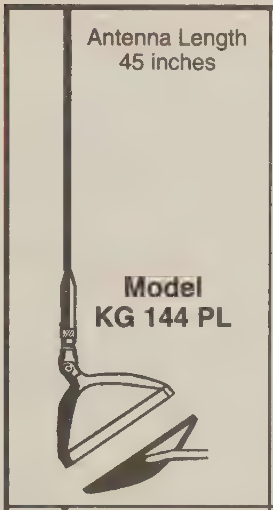
KG Series

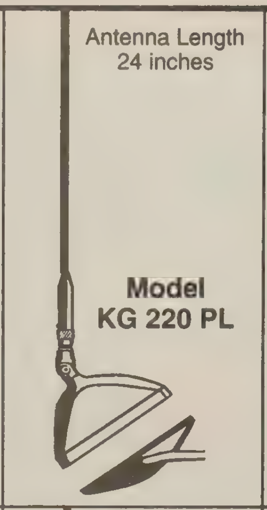
Kūlglass® Antennas

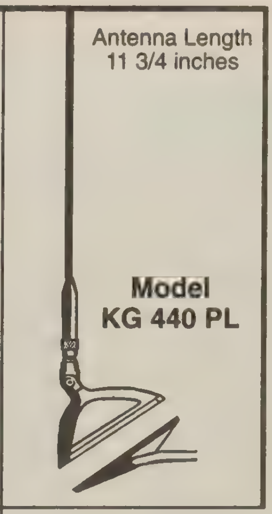
Larsen's advanced design techniques in glass-mount antennas result in superior transmit range plus tremendous mechanical durability. Today the glass mount design's performance is nearly identical to rooftop mounts, with no holes to drill. Properly installed on-glass antennas grip for years under demanding conditions, yet are easy to remove and remount.

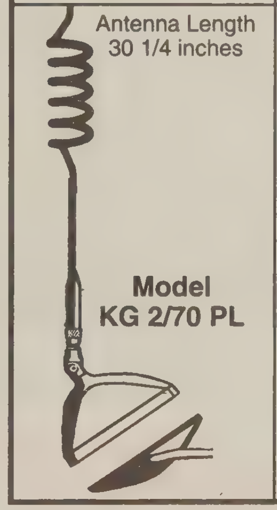
- Patented low-impedance design is more efficient electrically.
- Greater transmit range.
- Transformer located outside vehicle.
- Copper plated whips emit more RF.
- Rated 50 watts output.
- VSWR at 1.5 to 1 or less.
- Less than .5 dBd loss through glass vs. rooftop.
- New circuit board technology locks in solid state performance.
- 3M's best on-glass adhesive grip.
- 3 year No-Nonsense Warranty™.
- Made in USA.

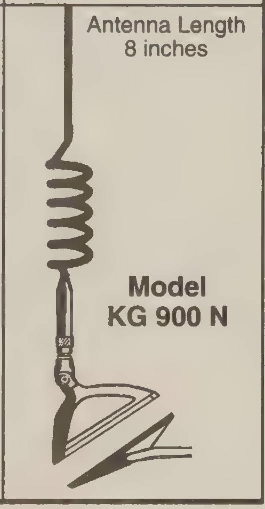

Kūlrod® copper plating
17-7 stainless steel rod
Makroblend plastic shell
Brass, copper, soldered connections
Premium quality Belden coax


Antenna Length 45 inches
Model KG 144 PL


Antenna Length 24 inches
Model KG 220 PL


Antenna Length 11 3/4 inches
Model KG 440 PL


Antenna Length 30 1/4 inches
Model KG 2/70 PL


Antenna Length 8 inches
Model KG 900 N

Model KG 144 PL (2m)

NEW SOLID STATE COUPLER

Band	144-160 MHz
Electrical	1/2 wave
Gain	2.4 dBd
Connector	PL 259, (Loose)

Model KG 220 PL (1.25m)

Band	220-224 MHz
Electrical	1/2 wave
Gain	2.4 dBd
Connector	PL 259, (Loose)

Model KG 440 PL (70cm)

Band	440-460 MHz
Electrical	1/2 wave
Gain	2.4 dBd
Connector	PL 259, (Loose)

Model KG 2/70 PL (Dual)

NEW SOLID STATE COUPLER

Band	144-148; 440-450 MHz
Electrical	1/2 wave VHF Collinear UHF
Gain	2.4 dBd VHF; 4.5 UHF
Connector	PL 259, (Loose)

Model KG 900 N (35cm)

Band	865-965 MHz
Electrical	5/8 over 1/2 wave
Gain	2.4 dBd
Connector	N, (Loose)

Call Toll-Free to Order a Larsen Antenna

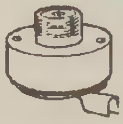
VHF / UHF ANTENNAS FOR . . .

Larsen

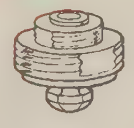
Mobile Antennas

Larsen has a number of mobile antenna configurations. These are assembled based on the frequency, base type (e.g., magnetic mount) and thread type (e.g., NMO). Keep in mind that it is necessary to select the base with the same mounting style as the antenna. To assist in this selection, typical bases and styles are shown below.

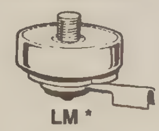
Thread Type



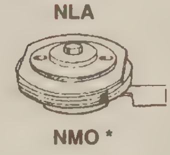
PO (SO-239)



NLA



LM *

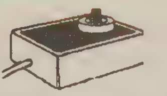


NMO *

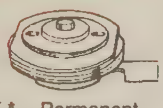
These are examples of each of the thread types. Select one of these and then select the base.

* These are the most popular thread types.

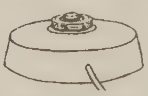
Mount Configurations



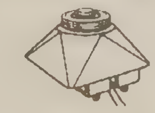
MM * -- Magnetic



K * -- Permanent



MMR -- Magnetic



TLM -- Trunk

Each of these mounts comes in one of the thread types. For example, a magnetic mount with an LM type would be called an LMMM.

*These are the most popular base configurations.

MOUNT BASES

Thread Type	Magnetic Mount	Trunk lip Mount	Permanent Mount
LM	LM-MM	LM-TLM	LM-K
NMO	NMO-MM	NMO-TLM	NMO-K
NLA	NLA-MM	NLA-TLM	NLA-K
PO	PO-MM	PO-TLM	PO-K

Antenna Selection

Once the base and thread type are selected, the final step is to choose the antenna. Gain antennas are made of a coil and a whip. Quarter wave antennas are just a whip.This is based on two factors: frequency and gain. For most amateur work, the **frequency choices and gain whips** are:

Frequency	Coil	Whip
2m	150	W490
220MHz	220	W320
440MHz	UHF	W144B

For quarter wave antennas from 2m -- 450 MHz, use **Q** style antenna. Select the thread type and add **Q** (e.g., NMOQ for a 1/4 wave antenna with an NMO mount).

On-Glass Antennas

pro·am

Glasmaster™ Glass Mount Antenna

Model GM270 is a dual-band, on-glass mounted antenna for 2 meters and 440 MHz. It comes with 14' RG58 with a PL-259 connector. **HRO Price $59.95**

Larsen

Single Band 1/2-Wave

All single band antennas are precut, single 1/2 wave design providing 2.4 dB gain and a maximum power 100 watt rating. The antennas are supplied with a PL-259 connector on 14 feet of premium RG58/Ucable. VSWR is 1.5:1 or less.

Model	Description	HRO Price
KG-144-PL	2 meter antenna	$58.85
KG-220-PL	220 MHz antenna	$58.85
KG-440-PL	440 MHz antenna	$49.15

Dual-Band On-Glass

The **KG 2 / 70** enables simultaneous use of the 2 meter and 70 centimeter bands without sacrificing gain and without drilling a hole in your car. The KG 2/70 is a half-wave on VHF and a collinear on UHF. It achieves 2.5 dBd gain on 2 meters and 4.5 dBd on 70 centimeters. Its maximum power capability is 50 watts. It comes with 14 feet of RG-58/U coax and a PL-259 connector. The antenna installs easily on any flat surface. Overall height is 36 inches including the mount. Remove the whip without tools for car washes or low garages. **HRO Price $84.95**

MOBILE MARK, INC.
COMMUNICATIONS ANTENNAS

On Window Dual Band

Mobile Mark's "On Window" dual band antenna can operate anywhere within the 140-174 and 440-470 MHz band widths. There is no tuning interaction between UHF and VHF. Either band can be tuned up without affecting the tuning of the other band. It provides unity gain. **HRO Price $89.95**

Specifications

Frequency	140-174 and 440-470 MHz
Maximum Power	150 Watts
Bandwidth	10 MHz VHF/ 20 MHz UHF
Radiator Length	24 inches (61 cm)
Cable	RG58U, 15.5 feet

as
antenna specialists

AP-143

This unique on-glass styling looks like a cellular antenna with a coil in the antenna. Broad banded. No tuning necessary. The length of the whip is only 26 inches. Black coating on the antenna is very attractive. No ground plane required.

VHF / UHF Base

The Forbes Group

Ventenna™

Can you spot the antenna?

Neither can your neighbors.

At last a solution to antenna restrictions. The Ventenna™ quickly slips over your existing vent pipe and your signal really gets out! It is nearly invisible and is one of the most rugged antennas made. The **VT-27** dual-band antenna is for 2 meters and 440 MHz. There are also single band models for 2 meters, 220 MHz and 440 MHz.

Model	Description	HRO Price
VT-14	2 meters	**$49.95**
VT-22	220 MHz	**$49.95**
VT-44	440-450 MHz	**$49.95**
VT-27	2 meter / 440 MHz	**$74.95**

Swiech Communications Systems

3 Element Beam For 2 Meters

The **COY2M3EL** is a black anodized, light weight 3 element beam antenna for 2 meters. It provides a 6.1 dB forward gain and an H-Plane beamwidth of 80 degrees. The bandwidth is 144-148 MHz with an SWR <1.7 at the band edges. Impedance is 50 ohms and it handles 200 watts. A great antenna for packet, public service, camping, T-hunting, Field Day or any portable operation. **HRO Price $64.95**

Also available are the
COY2M4EL: HRO Price $74.95
COY1.2 Beam: HRO Price $109.95

KLM

2-Meter Beams

Models 2M-16LBXM, 2M-11, 2M-4X.

440 MHz Beams

Models 432-16BA, 432-30LBX, 440-14, and 440-6.

MOBILES, HANDHELDS, BASE STATIONS

Formerly ANLI Antenna

PREMIER communications

Premier has a collection of dual band antennas for VHF and UHF. There are handheld, mobile, and base station versions and a collection of accessories and mounts. See the table below.

Model	Description	HRO Discount Price
	HT Antennas	
AL-800	2m/70cm 3.2/5.6 dB gain. 50 watt capability . 2 in 1 model. w/gold BNC. Black chrome plated.	$39.95
RD-8H	2m/70cm 10 watt capability. Flexible whip.	$19.95
S-1	2m/70cm 0/3/2 dB. 50 watt capability.	$27.95
	Mobile Antennas	
AT-2	2m/70cm 3.8/5.6 dB. 200 watts. 2'3" tall. UHF connector.	$49.95
AT-3	2m/70cm 2.15/3dB dB. 150 watts. 17" tall. Black Chrome Finish. UHF connector.	$29.95
AT-4	2m/70cm 3/5.5 dB gain. 200 watt capability. UHF or NMO mount (specify with order).	$49.95
	Mounts	
CM-1	Side mirror clip mount with BNC connector. 8' coax cable.	$19.95
CM-2	Side mirror clip mount with adjustable BNC connector 8' coax cable.	$17.95
WA-1	Window/sun roof clip mount with BNC connector. 8' coax cable.	$23.95
MC-1	Hi-Flux magnetic mount with RG-58C/U super high quality cable.	$28.95
TA-1	Trunk mount with RG-58C/U super high quality cable.	$28.95
	Base Antenna	
A-1000	Base Antenna. 2,/70cm. 8.5 dB (2m) 11.8db(70cm) Gain. 310 watts. 17.5" Tall	$179.95

2m / 70 cm Dual-Band Antennas

Dual Mobile Antennas

Brand	Model	Type	Frequency MHz	Gain	Weight oz.	HRO Price
Icom	AH-32	2m	144-148	2.7 dB	8.8	$54.95
		70cm 5/8 collinear	440-450	5.5 dB		
Kenwood	MA-700	2m 1/2 whip	144-148	3.0 dB	7	$94.95
		70cm 5/8 stacked	440-450	5.5 dB		
Larsen	NMO 2/70	2m	144-148	2.6 dB	3.9	$46.65
		70cm 5/8 collinear	440-450	5.5 dB		
Austin	500C	2 m	144 -148	Unity	6	$32.95
		70 cm	440 - 450			
	Metropolitan	2 m	144 -148			$39.95
		220 MHz	220 - 225	Unity	6	
		70 cm	440 -450			

In addition to the antennas in the chart above, there are more dual-band antennas on the following pages:

DIAMOND ANTENNA
See Page 102

COMET
See Page 108

Maldol
See Page 95

Magnetic Mobiles

pro·am

The Micro Mag

This is a series of compact VHF and UHF antennas. With their stylish, trim and petite profiles, they are just the antenna for today's mobile ham. Models include:

Model	Description	HRO Price
MM144B	2 meters	$44.95
MM450B	440-450 MHz	$44.95
MM270B	Dual Band	$49.95

Duplexers

When using a single antenna with mobile radios that have separate 2 meter and 440 MHz outputs, it is necessary to use a duplexer. The Kenwood MA-700 comes with a duplexer. Optional duplexers are available from Larsen, Yaesu, Diamond and Comet.

COMET

Comet Antenna produces the widest variety of antenna duplexers / triplexers. Features include gold-plated connectors, high isolation and the highest power handling abilities. See pages 108 and 109 for details.

DIAMOND ANTENNA

Diamond has a wide collection of duplexers and triplexers for coupling antennas to the transceivers. See pages 102 and 103.

Larsen

Model **AD-2 / 70** provides a bi-directional passive coupler needed when using a single dual-band antenna. Isolation between VHF and UHF is more than 50 dB. Handles 200 watts. **HRO Price $63.70**

YAESU

The **AD-3** duplexer will handle up to 50 watts and comes with short cables to attach to the radio. The VHF cable has an SO-239 and the UHF has a type N connector. VHF to UHF isolation is 50 dB. **HRO Price $52.95**

Rubber Duckies

Larsen

Larsen offers several models of "rubber duck" antennas, each with its own special performance characteristics.

Helical

The Helical antennas, approximately 6" in length, are the most commonly used.

HQ

The HQ is a helical quarter wave antenna and offers a higher gain than the normal helical. This antenna is offered only for VHF applications.

HW Half Wave

Available for both VHF and UHF, the 1/2-wave design allows operation independent of the ground plane. It has a rigid impedance transformer at the base and a telescoping, black chrome-plated whip with a BNC connector.

Antenna Mount

Tenna Hitch

Where can you mount your antenna on a car with no bumpers? Where can you mount your HF antennas without punching holes? Do you want to pull a trailer and ham at the same time?

Here is the solution. The Tenna Hitch mounts under the ball of your trailer hitch so you can use your regular antenna for HF mobile operation while still pulling your trailer. Tenna Hitch will support all current HF mobile antennas. It comes with all the hardware necessary for mounting on your trailer hitch. **HRO Price $32.95**

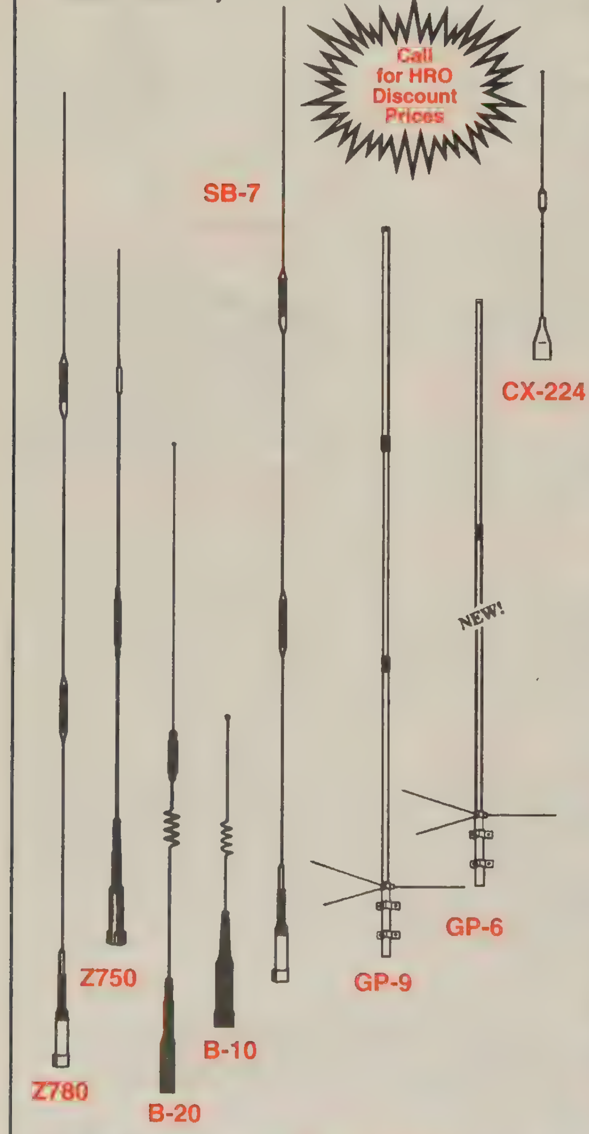
Most Orders Over $100
Are Shipped FREE UPS Brown

COMET

Dual- / Tri-band VHF / UHF Antennas

Comet developed the Super Linear Converter (SLC) System to increase the actual gain of Dual and Triband antennas.

- A complete pre-formed phasing coil and phosphorus copper element eliminates additional components and gain loss.
- The SLC is electrically very efficient, providing a low angle of radiation, directly to the horizon, for maximum performance.
- Comet sectional antennas use ABS (Transparent to RF) connecting joints for the finest pattern and easiest assembly.



Call for HRO Discount Prices

Comet Dual-Band Antennas

MODEL	BANDS	GAIN	MAX PWR Watts	CONN	WGT Lbs' oz"	LEN FT' In"	MAX WIND SPEED MPH	Sugg. List
Dual Band Base Station Repeater Antennas								
GPX-2010	2m/70cm	9.5/13.2	200	SO-239	7'14"	23'4"	65 w/o guys 90 w/guys	$395.95
GP-9/GP-9N	2m/70cm	8.5/11.9	200	SO/N	5'11"	17'8"	90	$224.95
GP-6	2m/70cm	6.5/9.0	200	SO-239	3'8"	10'5"	90	$174.95
GP-3	2m/70cm	4.5/7.2	200	SO-239	2'12"	5'11"	112	$121.95
CA-350DB	10m/6m	2.15/6.5	100 FM	SO-239	7'8"	22'7"	65	$319.95
CA-1243Z	70cm/23cm	9.4/12.8	150/50	N-Female	3'8"	7'5"	90	$161.95
CA-1243E	70cm/23cm	6.0/8.4	150/50	N-Female	1'13"	3'4"	112	$94.95
Dual Band Mobile Antennas - All Black Anodized								
SB-7/SB-7NMO	2m/70cm	4.5/7.0	70	PL/NMO	–	4'7"	–	$82.95
SB-5/SB-5NMO	2m/70cm	3.0/5.5	120	PL/NMO	–	3'2"	–	$58.95
SB-2/SB-2NMO	2m/70cm	2.15/3.8	100	PL/NMO	–	20"	–	$35.95
B-10	2m/70cm	–/2.15	50	PL-259	–	12"	–	$38.95
B10NMO								$38.95
B-20	2m/70cm	2.15/5.0	50	PL-259	–	30"	–	$56.95
B20NMO								$56.95
SB-214W	2m/220MHz	1.7/3.4	100	PL-259	–	2'11"	–	$62.95
CHL-350	10m/6m	–/2.15	200	PL-259	–	7'0"	–	$71.95
NEW Z Series With Theft-Resistant Lock								
Z750	2m/70cm	2.15/5.5	200	PL-259	–	3'3"	–	$66.95
Z780	2m/70cm	4.5/7.2	150	PL-259	–	5'2"	–	$89.95

Comet Tri-Band Antennas

MODEL	BANDS	GAIN	MAX PWR Watts	CONN	WGT Lbs' oz"	LEN FT' In"	MAX WIND SPEED MPH	Sugg. List
TrBand Base Station Repeater Antennas								
GP-15	6m/2m/70cm	3/6.2/8.6	200	SO-239	2'15"	7'11"	90	$169.95
GP-93	2m/70cm/23cm	4.5/7.2/10	200	N-Female	2'8"	5'7"	112	$149.95
GP-98	2m/70cm/23cm	6.5/9.0/13.5	100	N-Female	3'6"	9'4"	90+	$229.95
CX-333	2m/220/70cm	6.5/7.8/9.0	120	SO-239	3'10"	10'2"	112	$214.95
TriBand Mobile Antennas								
FJ-15S	6m/2m/70cm	2.15/4.5/7.2	120	PL-259	–	4'10"	–	$104.95
SB-97	2m/70cm/23cm	3.0/6.8/9.6	100	N-Male	–	3'3"	–	$84.95
CX-224	2m/220/70cm	2.15/3.2/5.5	150	PL-259	–	3'1"	–	$82.95
CX-224NMO	2m/220/70cm	2.15/3.2/5.5	150	NMO	–	3'1"	–	$82.95
CA-HV	40/(20)/15/10	1/4 Wave	120 SSB	PL-259	MAX 1'3"	MAX 6'3"	–	$149.95
L-14	Opt 20M coil for CA-HV						–	$36.95
HA-4S	40/(20)/15/10/ 6/2m	HF-/2.25/3.4	150 SSB	PL-259 /NMO		4'4"	–	$199.95
L-14HS	Opt 20M coil for HA-4S						–	$39.95

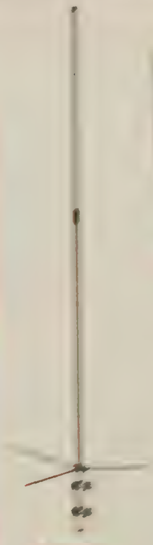
Comet Single Band and HT Antennas

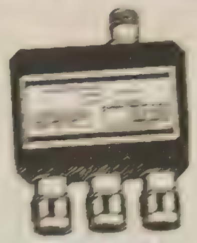
MODEL	BANDS	GAIN	MAX PWR Watts	CONN	LEN FT'In"	HRO Price
Single Band Antennas						
SB-25/SB-25NMO	2m	4.1	100	PL-259/NMO	4'8"	$49.95
SB-44	70cm	5.5	130	PL-259	37"	$44.95
HT Antennas						
CH-32 MINI Ant	2m/70cm	–	10	BNC	1.75"	$33.95
SMA-3	2m/70/23cm	1.2/1.7/3.4		SMA	9.75"	$41.95
CH-72S	2m/70cm	–/3.2	50	BNC	15"	$32.95
SH-95	2m/70/23cm	1.5/2/5.5	10	BNC	15"	$49.95

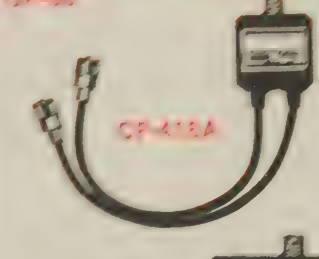
Comet High-Power Duplexers and Triplexers

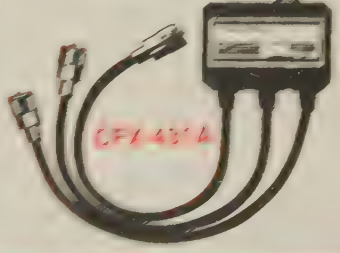
Zinc-alloy die-cast twin-cavity low input loss, high-isolation, and high-power. Modernize your station with Comet high-performance antenna products.

MODEL	PORT	Freq. MHz	C.W. Watts	PEP Watts	Loss dB	Isol dB	Mix Conn	Port Conn	HRO Price
CF-416A 2m/70cm	LPF HPF	1.3-150MHz 400-540MHz	450 300	800 500	0.15 0.25	60 60	SO-239	PL-259 w/leads PL-259 w/leads	$58.95
CF-416B 2m/70cm	LPF HPF	1.3-150MHz 400-540MHz	450 300	800 500	0.15 0.25	60 60	N-Female	PL-259 w/leads N-Male w/leads	$58.95
CF-4160J 2m/70cm	LPF HPF	1.3-150MHz 400-540MHz	450 300	800 500	0.1 0.2	60 60	SO-239	PL-259 w/o leads N-Male w/o leads	$52.95
CF-4160K 2m/70cm	LPF HPF	1.3-150MHz 400-540MHz	450 300	800 500	0.1 0.2	60 60	SO-239	PL-259 w/o leads PL-259 w/o leads	$52.95
CF-419B [illegible]	LPF HPF	1.3-150MHz 350-500MHz 840-1.4GHz	450 300 100	800 500 200	0.25 0.25 0.4	55 55 55	N-Female	PL-259 w/leads N-Male w/leads	$74.95
CF-530 [illegible]	LPF HPF	1.3-90MHz 125-470MHz	350 350	600 600	0.2 0.2	45 45	SO-239	PL-259 w/leads PL-259 w/leads	$74.95
CF-360A [illegible]	LPF HPF	1.3-30MHz 50-540MHz	350 350	600 600	0.2 0.2	45 45	SO-239	PL-259 w/leads PL-259 w/leads	$74.95
CF-[illegible] 2m/220MHz	LPF HPF	1.3-150MHz 220-460MHz	300 200	600 400	0.2 0.3	40 60	SO-239	PL-259 w/leads PL-259 w/leads	$74.95
CFX-431A 2m/70cm/1.2	LPF - BPF HPF	1.6-60MHz 100-150MHz 350-500MHz 840-1.4GHz	600 450 300 100	1kW 800 500 200	0.2 0.2 0.3 0.4	50 50 50 50	N-Female	PL-259 w/leads - N-Male w/leads N-Male w/leads	$89.95
CFX-4310B 2m/70cm/1.2	LPF - BPF HPF	1.6-60MHz 100-150MHz 350-500MHz 840-1.4GHz	600 450 300 100	1kW 800 500 200	0.15 0.25 0.25 0.3	50 50 50 50	N-Female	PL-259 w/leads - N-Male w/leads N-Male w/leads	$84.95
CFX-4310C 2m/70cm/1.2	LPF - BPF HPF	1.6-60MHz 100-150MHz 350-500MHz 840-1.4GHz	600 450 300 100	1kW 800 500 200	0.15 0.25 0.25 0.3	50 55 50 50	N-Female	PL-259 w/leads - N-Male w/leads N-Male w/leads	$84.95
CFX-514 6m/2m/70cm	LPF BPF HPF	1.3-90MHz 130-200MHz 350-500MHz	450 450 300	800 800 500	0.2 0.25 0.3	55 55 55	SO-239	PL-259 w/leads PL-259 w/leads PL-259 w/leads	$84.95
CFX-514J 6m/2m/70cm	LPF BPF HPF	1.3-90MHz 130-200MHz 350-500MHz	450 450 300	800 800 500	0.15 0.2 0.25	55 55 55	SO-239	SO-239 w/o leads SO-239 w/o leads SO-239 w/o leads	$79.95
CFX-324A 2m/220/70cm	LPF BPF HPF	1.3-150MHz 200-320MHz 350-500MHz	350 350 350	600 500 500	0.2 0.25 0.3	40 40 40	SO-239	PL-259 w/leads PL-259 w/leads PL-259 w/leads	$86.95
CFX-324B 2m/220/70cm	LPF BPF HPF	1.3-150MHz 200-320MHz 350-500MHz	350 350 350	600 500 500	0.2 0.25 0.3	40 40 40	SO-239	PL-259 w/o leads PL-259 w/o leads PL-259 w/o leads	$86.95





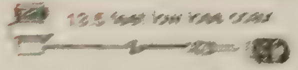




Comet Mobile Mounting Systems

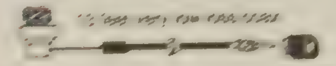
Comet has a wide variety of mobile mounts. Choose the mount and coax cable assembly that best fits your personal needs. All Comet cables have detachable connectors.

MODEL	DESCRIPTION	HRO Price
3D4M	Standard coax assy. 13' low loss 3.5mm coax w/UHF Connectors	$24.95
3D4N	-Ditto- But with N-Type Connectors	$28.95
CK-3M5	17' high quality cable ... RG-188 is ... water ... damage. UHF Conn.	$30.95
CK-5N	-Ditto- But with N-Type Connectors	$40.95
5D4N	13' VERY low loss 5mm cable assy. For 1.2GHz. N-Type Connectors	$34.95
The following Mounts are w/o Coax. Choose from the Cable Assembly Above.		
RS-500	Heavy Duty Gutter Mount	$24.95
RS-520	Small/Heavy Duty Trunk/Hatch Mount	$29.95
RS-21	Multi-Purpose Mount. Trunk-Lip/Hatch-Back. Black. Adj. to any position	$29.95
RS-3	Trunk-lip Mount. Black. For small antennas. B-10, B-20, CHL-20L, etc.	$14.95
CM-5M	Standard Mag-Base Mag w/ w/RG-58A/U Coax. UHF Conn. Max Antenna Height 4'	$42.95
MB-5L/NMO	-Ditto- But with N-Type Connectors	$[illegible]
SP-5M	Deluxe trunk-lip mount w/CK-3M5 Cable, UHF connector	$59.95
SP-5N	Deluxe trunk-lip mount w/CK-5N Cable, N-Type connector	$69.95



3D4M(N) Detachable Connector

RG-188 provides easy entry into the vehicle from an exterior mount

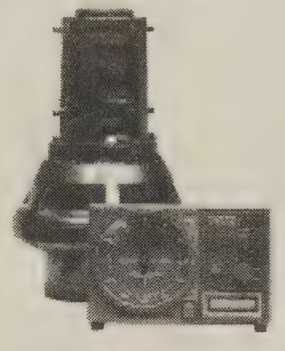


15 inches RG-188 CK-3M5/CK-5N Detachable Connector

Call HRO for discounts on all your Comet antennas

YAESU ROTATORS

Yaesu's high quality rotators for amateurs include models for medium to large arrays and for satellite work. There are also provisions for computer control. Contact your nearest HRO for more specifications and low, discount prices on Yaesu products.



G-2800SDX

The G-2800SDX is a high-technology rotator designed to turn the largest tower-mounted antenna arrays.

G-800S / G-800SDX

The G-800 rotator series is designed for medium to heavy loads and antennas up to 20 square feet. The G-800SDX is the same as the G-800S with the addition of presets.

G-1000SDX

The G-1000SDX is designed to handle bigger arrays, up to 22 square feet. A great value.

Rotator Computer Controllers

The GS-23 Rotator Computer Controller is for the G-800SDX, G-1000SDX and G-2800SDX.
Suggested List Price GS-23 $345.95

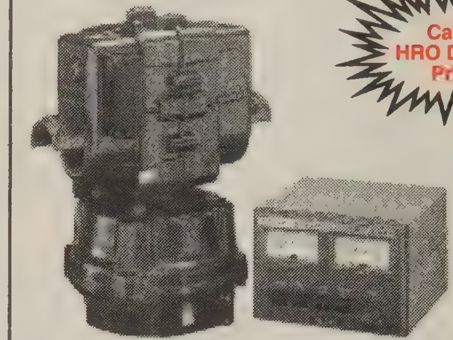
The GS-232 model is for the G-5400.
Suggested List Price GS-232 $547.95

G-450XL

NEW!

The G-450XL is ideal for smaller HF and VHF/UHF antennas. Features 360 degree radial compass display with overlap. A slight modification required for 220V operation.

Call for HRO Discount Prices



G-5400B

This is the most popular azimuth and elevation rotator for satellite, moonbounce or any other space communications work. It is a combination of the G400 and G500 rotators providing both horizontal and vertical antenna rotation in a single unit. The control box has two large meters, one showing elevation and the other showing azimuth. Meter aiming accuracy is within ±4%. The G-5400B provides for full 180° elevation rotation with a rotation time of 58 seconds. A full 360° azimuth rotation can be achieved in just 50 seconds. This rotator will accept up to a 2.5" mast, a maximum 1-5/8" horizontal cross-boom and 440 pounds of vertical load.
Suggested List Price $589.95

G-500A

This is an elevation rotator for satellite work. The control box shows elevation in degrees.

Rotator Separation Kit

For some applications it is desirable to separate the azimuth from the elevation rotator on the tower. This separation kit provides all the hardware for the rotator to implement this separation.
HRO Price $30.95

M²

OR-2800

The M² Orion OR-2800 antenna rotator is engineered for long life, reliability and performance while turning large antennas or systems. Features include a strong ductile iron mast clamp, supports up to 3" masts, extended and hardened drive shaft and prop-pitch style torque plate. The rotator housing fits inside most popular towers and mates to standard tower / rotator plates.

The RC2800 Control Box features digital readout, variable speed control, slow start, and reverse delay. The RC2800P adds programmability, preset, 2 rotator capacity, slow-start/coast-down, true AZ readout-continuous and infinite limit position control.

For larger antenna systems there is the optional PTA-1 Peak Torque Absorber unit which reduces instantaneous torque stresses to mast, tower, boom and rotator. The OR-2800 carries a 1 year warranty and is available from any HRO store. The unit is made in the U.S.A.
Suggested List $1299.95

Wind Area Capacity	35 sq ft
Starting Torque	3500 in lbs
Rotating Torque	2500 in lbs
Breaking Torque	17000 in lbs
Vertical Load Capacity	1800 lbs
Mast Size (O.D.)	1.75-3"
Rotational Speed (360)	70-140 sec
Readout Accuracy	1 degree
Input Voltage	110/220 AC 50/60 Hz
Motor Voltage	28 VAC
Cable Type	8 conductor
Weight (Rotator unit)	28.5 lbs

Rotator Specifications

	Model	Input Voltage	Motor Voltage	Rotation Time	Stationary Torque	Rotation Torque	Maximum Windload	Max. Vert Load	Max. Mast Size	Cable Type	Weight lbs (kg)	List Price Call for HRO Discount Price
Hy-Gain	HDR-300A	110/220 V	24 VAC	60 sec	7500 in lbs	5000 in lbs	25 sq ft	500 lbs	3 in	7-wire	55 (25)	$1,380.95
	T2X#	110 V *	24 VAC	60 sec	9000 in lbs	1000 in lbs	20 sq ft	800 lbs	2.06 in	8-wire	28 (12.7)	$613.95
	HAM-IV#	110 V *	24 VAC	60 sec	5000 in lbs	800 in lbs	15 sq ft	500 lbs	2.06 in	8-wire	24 (11)	$515.95
	HAM-V#	110 V *	24 VAC	60 sec	5000 in lbs	800 in lbs	15 sq ft	500 lbs	2.06 in	8-wire	24 (11)	$749.95
	CD-45II	110 V	24 VAC	60 sec	800 in lbs	600 in lbs	8.5 sq ft	200 lbs	2.06 in	8-wire	22 (10)	$373.95
	AR-40	110 V	24 VAC	60 sec	450 in lbs	350 in lbs	3 sq ft	100 lbs	2.06 in	5-wire	14 (6.4)	$260.95
M 2	OR-2800	110/220 VAC	28 VAC	70 sec	17,000 in lbs	2500 in lbs	35 sq ft	1800 lbs	3 in	8-wire	28.5 (13)	$1,099.95
Yaesu	G-450XL	110 V	24 VAC	51 sec	217 ft lbs	39.8 ft lbs	10 sq ft	242 lbs	2 in	5-wire	7 (3.2)	$269.95
	G-800S	110 VAC	24 VAC	55 sec	3456 in lbs	43-79 ft lbs	17 sq ft	440 lbs	2.5 in	6-wire	10 (4.5)	$369.95
	G-800SDX	110 VAC	24 VAC	55 sec	3456 in lbs	43-79 ft lbs	17 sq ft	440 lbs	2.5 in	6-wire	10 (4.5)	$469.95
	G-1000SDX	110 VAC	24 VAC	55 sec	5200 in lbs	79 ft lbs	22 sq ft	440 lbs	2.5 in	6-wire	15 (6.8)	$569.95
	G-2800SDX	110 VAC	24 VAC	55 sec	20,832 in lbs	219 ft lbs	34 sq ft	880 lbs	2.5 in	6-wire	26(11.8)	$1,099.95
	G-500A	110 VAC	24 VAC	61 sec	1740 in lbs	876 in lbs	11 sq ft		1.5 in	6-wire	5.5 (2.5)	$309.95

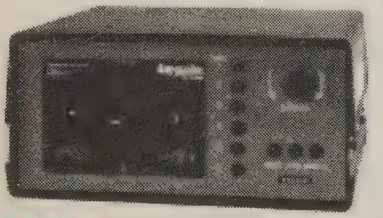
* 220 VAC models are available at additional costs #Difital versions available. Call for quotes

hy-gain by Telex

Hy-Gain rotators are the industry standard. Reliable operation, our one year limited warranty, and the best customer service in the industry make Hy-Gain rotators the choice of hams around the world. Unlike our competitors, every tower manufactured comes with mounting holes for the Hy-Gain bolt pattern.

The new heavy duty HDR-300A now has a control cable connector, new stainless steel shaft and features a choice of North or South centering orientation.

Hy-Gain also introduces the new DCU-1 Pathfinder, the first all digital rotator control box made in the USA. With six heading presets, automatic break delay and computer compatibility, the DCU-1 Pathfinder establishes a new standard for rotator systems.



NEW!

Pathfinder Digital Control System DCU-1

The DCU-1 features digital and analog displays with six presets letting you preprogram your favorite beam headings. The main ROTATE knob sets the target bearing within 1 degree. It's an all-in-one RS-232 computer interface unit and simple Basic program is included. Features include an automatic break delay, motor slow down, automatic calibration, programmable center of rotation. The DCU-1 may be paired with the T2X, HAMIV or HAMV. **Suggested List $519.95**

The OWL

Want to keep those birds off your antenna system? The OWL is just the trick.

Mount this fella on top of your tower and the birds will stay away.

HRO Price $19.95

Connectors

Connect Works

Model	Description	HRO Price
B-112XC	BNC for RG-b/X Gol Pin	$3.99
BU-312	BNC to UHF Adaptr (BNC-255)	$5.99
NU-312	N to UHF Adaptr (4400)	$9.99
SB-312	SMA to BNC Adaptr	$9.99
U-245C	4 hole SO-239 Chassis Connector	$1.99
U-311	Double Male UHF (83-877)	$6.99
U-322	UHF Barrel (83-1J)	$4.99
U-332	Long UHF-UHF Barrel (83-1F)	$6.99
U-412	RT. Angle Teflon, Gold Pin (83-1AP)	$8.99
U-512C	UHF "T" (83-1T)	$6.99
UB-312	BNC to UHF Adaptr (31-28)	$6.99
UN-312	UHF to N Adptr (14000)	$15.99

Rotator Cable

Belden

HRO carries two **Belden rotator cables**. Use standard duty cable for runs up to 100 feet. For longer runs, please use heavy duty cable. Remember, Belden quality is **tops** in the industry

8 wire, standard duty - Model 8448 - 8 wire cable using 6 - #22 and 2 - #18 tinned copper conductors. PVC insulation; chrome PVC jacket.

8 wire, heavy duty - Model 9405 - 8 wire cable using 6 - #18 m and 2 - #16 tinned copper conductors. PVC insulation; chrome PVC jacket.

When Ordering Cable

Please order the cable in multiples of 50 feet. Lengths up to 1000 feet in a continuous spool can be provided.

Call Toll Free for HRO Discount Prices

Coax

Belden

Coax can be purchased in any length up to 1000 feet. 1000' continuous lengths of 9913 or 8214 must be sent by truck. **Call for Belden quotes.**

8214 - RG8 / U

8214 is a standard RG8 / U, #13 stranded copper center conductor, cellular polyethylene insulation, 97% bare copper shield, PVC jacket, 50 ohm impedance, 78% velocity factor and 1.8 dB loss per 100' at 100 MHz. The most popular cable for HF and VHF / UHF. Use when long cable runs are not required.

RG213 / U

RG-213 / U coax, #13 stranded copper center conductor, solid polyethylene insulation, 97% bare copper shield, non-contaminating PVC jacket, 50 ohm impedance, 66% velocity factor and 2.2 dB loss per 100' at 100 MHz. This RG-8 type cable is best for HF use and may be buried.

9913

9913 is RG8-type coax, #9.5 solid copper conductor, semi-solid polyethylene insulation, 100% foil plus 88% braid shield, PVC jacket, 50 ohm impedance, 84% velocity factor and 1.4 dB loss per 100' at 100 MHz. The best cable for VHF and UHF applications.

9258 - RG8X

RG8X is small diameter coax, #16 stranded copper center conductor, cellular polyethylene insulation, 95% bare copper shield, PVC jacket, 50 ohm impedance, 78% velocity factor and 3.7 dB loss per 100' at 100 MHz. Good for short VHF runs and most HF uses.

9356 - RG8 / U

100' roll of 8214 RG8 / U coax with PL-259 connectors (crimp type) installed on each end for your convenience.

8000

14 strand "copper weld" bare copper wire. Great for long wires or dipole. High tensile strength.

COAX-SEAL

Coax-Seal will seal all types of coax fittings, baluns, antenna parts and connectors of any shape. Adheres to most surfaces. Wrap Coax-seal around the object you want to protect and then mold it into shape. Keeps moisture out of the coax fitting on antenna feed lines. Need to make a change? Just remove it and start over.

MA-SERIES CRANK-UP MASTS

The premier MA-Series crank-up Tubular Towers are designed to be both safe and neighbor friendly. The slender design gives a Clean, flagpole-like appearance, while allowing for antennas up to 10 sq. feet in 50 mph winds. Per EIA Specifications, adequate safety margins are included. Uniform Building Code calculations are available for most models.

The MA-40 and 550 models come standard with flat base. two 1/2" x 10" anchor bolts, wall bracket and rotor plate mounted on top of top section. No guying is required when tower is properly bracketed to the eve of your roof.

MA-Series towers are completely self-supporting only when used with accessory MARB or MAB Series bases. The MARB Series rotor base allows the entire tower and antenna to be rotated from the base (rotor not included). This provides for easy rotor maintenance plus emergency hand rotation of the entire tower and antenna.

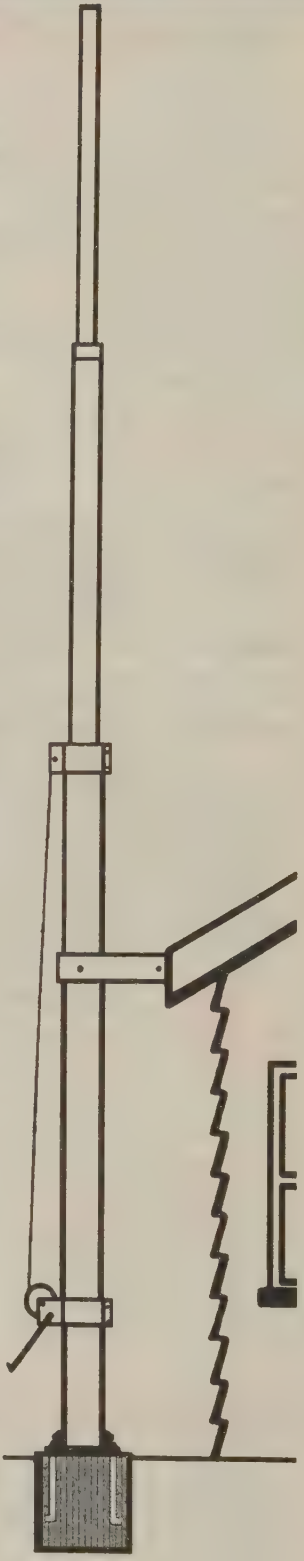
The MA-550MDP, 770MDP and 850MDP models include a heavy duty motor drive with positive pull down. The MDP models provide motorized raising and lowering of the tower. A remote control unit (RMC-1000) accessory is available that allows raising and lowering from your ham shack or other remote location.

All models without motor drives come standard with manual hand winches which have load actuated brakes for maximum safety. This feature prevents the winch from free-wheeling and causing injury to you or your installation in the event that you loose your grip during raising or lowering.

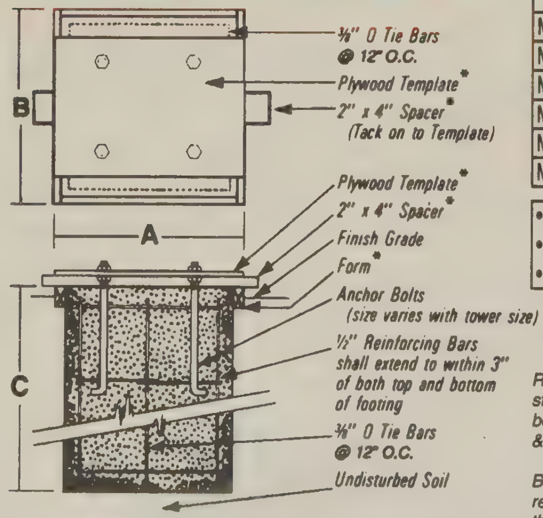
All steel used at US Tower conforms to ASTM specifications. All welding is done by certified factory personnel. All of our towers are factory tested by trained personnel before leaving the plant.

Model Number	Height Maximum	Height Minimum	Sections	Weight Pounds	Sec O.D. Top	Sec O.D. Bottom	HRO Price
MA-40	40'	21'6"	2	242	3" sq.	4.5"	$679.95
MA-550	55'	22'1"	3	435	3" sq.	6.625"	$1,069.95
MA-550MDP	55'	22'1"	3	620	3" sq.	6.625"	$2,619.95
MA-770	75'	22'10"	4	645	3" sq.	8.0"	$2,259.95
MA-770MDP	75'	22'10"	4	830	3" sq.	8.0"	$3,579.95
MA-850MDP	90'	23'6"	5	1128	3" sq.	10.0"	$4,819.95

All Towers will handle 10 sq. ft antenna at 50 MPH winds.



MA-SERIES BASE INFORMATION



*To be removed after base is installed.

Model	A	B	C	HRO Price
MA-40 standard flat base	16"	16"	16"	CALL
MA-550 standard flat base	20"	20"	20"	CALL
MARB-40 Rotor Base	3'	3'	4'	$499.95
MARB-550 Rotor Base	3'	3'	5'6"	$579.95
MARB-770 Rotor Base	3'	3'	6'6"	$689.95
MARB-850 Rotor Base	4'	4'	6'6"	$819.95

- Base dimensions may vary with different soil compositic
- Allow ample time for concrete to cure.
- MAB and MARB dimensions are the same.

Rebar is not provided by US Tower. MA-40 & 550 use their standard base as a template. These standard bases use only 2 bolts and require no rebar. Wooden template included with MAB & MARB bases.

Because of wide variations throughout the country in zoning requirements and loading conditions (snow, wind, ice, etc.), it is the responsibility of the customer to make Certain that his Tower conforms to all applicable codes. We recommend you obtain all necessary permits prior to purchase .

The factory reserves the right to make changes or modifications without notice.

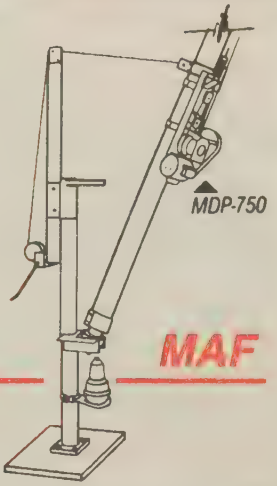
MA-SERIES ACCESSORIES

The Customer is Responsible
for obtaining all local city or county building and tower permits
AND
for taking the tower off the freight truck when it is delivered. Please arrange for adequate help.

MAF Raising Fixture

MAF-Series Raising Fixture accessory for easy raising and antenna servicing. For use with MARB and MAB bases.

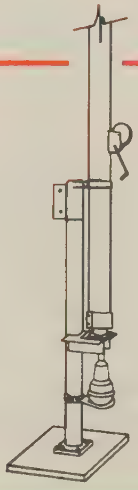
Model	Description	Weight
MAF-40	Raising Fixture for MA-40	35#
MAF-550	Raising Fixture for MA-550	70#
MAF-770	Raising Fixture for MA-770	75#
MAF-850	Raising Fixture for MA-850	80#



MAF

MARB Freestanding Rotator Base

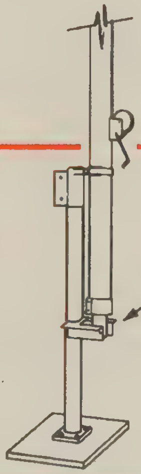
Model	Description	Weight
MARB-40	Freestanding Rotator Base for MA-40 with four 3/4" x 27" anchor bolts and thrust bearing	75#
MARB-550	Freestanding Rotator Base for MA-550 with four 1" x 36" anchor bolts and thrust bearing	140#
MARB-770	Freestanding Rotator Base for MA-770 with four 1" x 36" anchor bolts and thrust bearing	195#
MARB-850	Freestanding Rotator Base for MA-850 with four 1-1/8" x 36" anchor bolts and thrust bearing	280#



MARB

MAB Freestanding Type Base

Model	Description	Weight
MAB-40	Freestanding hinged base for MA-40 with four 3/4" x 27" anchor bolts	55#
MAB-550	Freestanding hinged base for MA-550 with four 1" x 36" anchor bolts	119#
MAB-770	Freestanding hinged base for MA-770 with four 1" x 36" anchor bolts	175#
MAB-850	Freestanding hinged base for MA-850 with four 1-1/8" x 36" anchor bolts	180#



Hinging allows for easy installation on both MAB and MARB Bases.

MAB

Coax Standoff Arms

Model	Description	Weight
CX-2M	Coax Standoff arms for MA-40	4#
CX-3M	Coax standoff arms for MA-550	6#
CX-4M	Coax Standoff arms for MA-770	8#
CX-5M	Coax standoff arms for MA-850	10#
IV-16	The IV-16 slips over the top of the mast and rests at the top of the tower to hold inverted vee antennas. TheIV-16 cannot be used with the MARB rotator base.	5#

Call Toll-Free for Discounts on U.S. Towers and Accessories

Motor Drives

Model	Description	Weight
MD-75	Heavy-duty motor drive with one HP motor and gear box.	155#
MDP-750	Heavy-duty motor drive with one HP motor, gear bos, and positive pull down.	185#

Remote Control Accessories

Model	Description	Weight
RMC-1000	Relay operated remote control for raising and lowering your tower from your ham shack or other remote location.	18#
MCL-100	Limit switch control package includes limit switches, limit switch brackets, and control box at the base of the tower.	7#

US TOWER CORPORATION

TMM SERIES

US Tower's latest design includes the compact TMM Series towers giving Hams in restricted areas an alternative. The TMM Series has a minimum retracted height of 11'4" (may vary, depending on rotator used) and a maximum height of 47' including mast. At the towers' retracted height, visual impact is reduced to a minimum and antenna servicing is made easier. Typically the tower and antenna are below the roof line of your home when the tower is fully retracted.

The TMM Series towers are lightweight, freestanding crank-up towers that allow up to 18 square feet of antenna in 50 mph winds per EIA specifications. The TMM-433HD handles 24 square feet. These lightweight towers should provide many years of trouble free service. All of our towers have a hot dipped galvanized finish inside and out.

The TMM-433SS and 541SS must have the rotator top mounted. The TM-433HD will accept the Alliance HD-73 and Telex Ham IV inside the tower. Oversized rotators will prevent full retraction of your tower; however, they may be used if full retraction is not required. This restriction is dependent on location of rotator plate. All TMM Series towers include anchor bolts, rotor plate, hinged T-base, load actuated winch, and eight feet of 2" OD x 120" antenna mast.

The TMM-433SS will accept the MD-75 motor drive accessory. The TMM-433HD and 541SS will accept the MD-75 and MDP-750 accessory motor drives. The MDP-750 motor drive accessory is compatible with both of our MCL-100 and RMC-1000 limit switch packages (see accessories).

TX SERIES

US Tower's freestanding TX Series crank-up towers are as strong or stronger than most competitors' heavy-duty models. The TX Series towers have 21 foot sections with 4 foot overlap to provide extra height and strength. In addition, the overlap helps prevent binding while lowering your tower in high wind and conditions.

The TX Series towers have a large enough top section (12 1/2") to permit installation of most rotators inside the section for maximum strength while allowing the section to fully retract. Cross bracing at critical points on the tower ensures safety and additional strength. All US Towers crank-up towers have a heavy-duty, hot dipped galvanized finish both inside and out, which should provide many years of trouble free service.

The TX Series towers come complete with rotator plate and base hardware which includes, large steel anchor bolts and heavy-duty steel T-base that allows the tower to hinge on for easy installation. All T-bases will accept the TRX Series raising fixtures for easy one man installation. All TX Series towers include Fulton hand winches (except MDP and MDLP models) which feature automatic load actuated brakes for maximum safety. Masts and motor drives are available as accessories (see accessory page).

The TX-472MDP comes complete with MDP-750 motor drive and limit switch brackets. The TX-489MDPL includes the MDPL-1000 motor drive and limit switch brackets. Limit switch assemblies and remote raising devices are available (MCL-100) (RMC-1000) for all MDP-750 and MDPL-1000 motor drive units (see accessory page for description).

US Tower's TX Series requires no guying. The wind loading is calculated at 18 square feet of antenna in 50 mph winds per EIA specifications. To assist you in applying for necessary construction permits, Uniform Building Code calculations are available for most models.

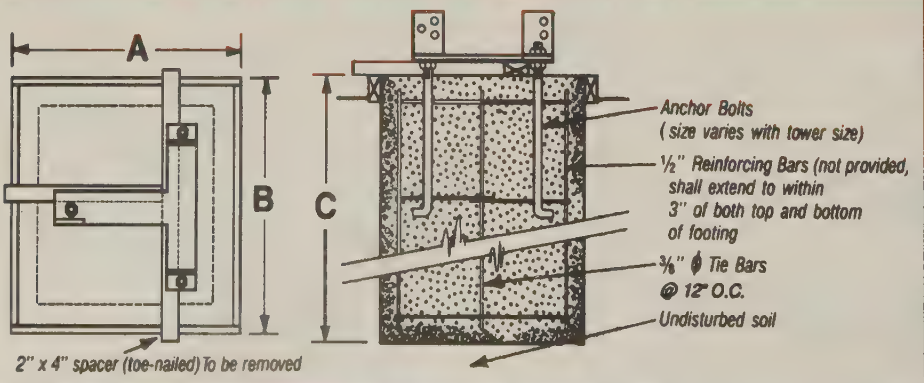
HDX SERIES

US Tower's HDX Series heavy-duty crank-up towers have up to 2 1/2 times more windloading capacity than others commonly advertised. This superior strength allows for large stacked arrays, while using our commercial type bases and anchor bolts that can be easily installed and vertically adjusted. All HDX Series T-bases are designed to use our TRX Series raising fixtures to make installations and antenna servicing a one man job.

Modified top sections for the HDR-300 rotators are available at a small additional cost. US Tower carries as accessories many different sizes and strengths of masts which can be used with the HDX Series towers. The HDX-572MDPL and 589MDPL motorized towers provide dual level wind, positive pull down and heavy duty gear box features. The HDX-572MDPL comes only with limit switch brackets. The HDX-589MDPL comes complete with the MCL-100, limit switch package. All towers using MDP-750 and MDPL-1000 motor drives may use the RMC-1000 accessory limit switch package which allows the raising and lowering of your tower from the comfort of your ham shack or any remote location. MCL-100 is also available (see accessory page).

All HDX Series towers come complete with rotator plate, anchor bolts and heavy-duty T-base (doubles as template). US Tower's special T-base design allows the tower to hinge for easy installation. US Tower's crank towers do not require guy wires. The HDX Series towers are rated at 30 square feet of antenna at 50 mph winds per EIA specifications. To assist you in getting a construction permit, Uniform Building Code calculations are available for most towers.

CRANK-UP TOWER BASE INFORMATION


A
B
C
Anchor Bolts
(size varies with tower size)
½" Reinforcing Bars (not provided, shall extend to within 3" of both top and bottom of footing
⅜" ϕ Tie Bars
@ 12" O.C.
Undisturbed soil
2" x 4" spacer (toe-nailed) To be removed

Model	A	B	C
TMM-433SS	3'	3'	4'
TMM-541SS	3'	3'	4'6"
TMM-433HD	3'	3'	5'4"
TX-438	3'	3'	5'
TX-455	3'	3'	6'3"
TX-472	4'	4'	7'
TX-489	4'	4'	7'
HDX-538	3'	3'	6'3"
HDX-555	4'	4'	6'6"
HDX-572	4'	4'	7'
HDX-589	5'	5'	7'6"
HDX-689	5'	5'	8'6"
HDX-5106	5'	5'	8'6"

SELF-SUPPORTING CRANK-UP TOWERS

Tower Specifications

COMPACT TMM-SERIES CRANK-UP TOWERS

Model Number	Height Maximum	Height Minimum	Sections	Weight Pounds	Sec O.D. Top	Sec O.D. Bottom	HRO Price
TMM-433SS	33' w/o Mas	11'4"	4	315	10"	18"	$1,049.95
TMM-433HD	33' w/o Mas	11'4"	4	400	12.5"	20 7/8"	$1,289.95
TMM-541SS	41' w/o Mas	12'	5	430	10"	20 7/8"	$1,389.95

All Towers will handle 18 sq. ft. antenna at 50 MPH winds. TMM-433HD will handle 24 sq. ft.

TX-SERIES FREE-STANDING CRANK-UP TOWERS

Model Number	Height Maximum	Height Minimum	Sections	Weight Pounds	Sec O.D. Top	Sec O.D. Bottom	HRO Price
TX-438	38'	21'6"	2	355	12.5"	15"	$999.95
TX-455	55'	21'	3	670	12.5"	18"	$1,499.95
TX-472	72'	22'8"	4	1040	12.5"	21 5/8"	$2,479.95
TX-472MDP	72'	22'8"	4	1210	12.5"	21 5/8"	$3,999.95
TX-489	89'	23'4"	5	1590	12.5"	25 5/8"	$4,299.95
TX-489MDPL	89'	23'4"	5	1800	12.5"	25 5/8"	$6,439.95

All Towers will handle 18 sq. ft. antenna at 50 MPH winds.

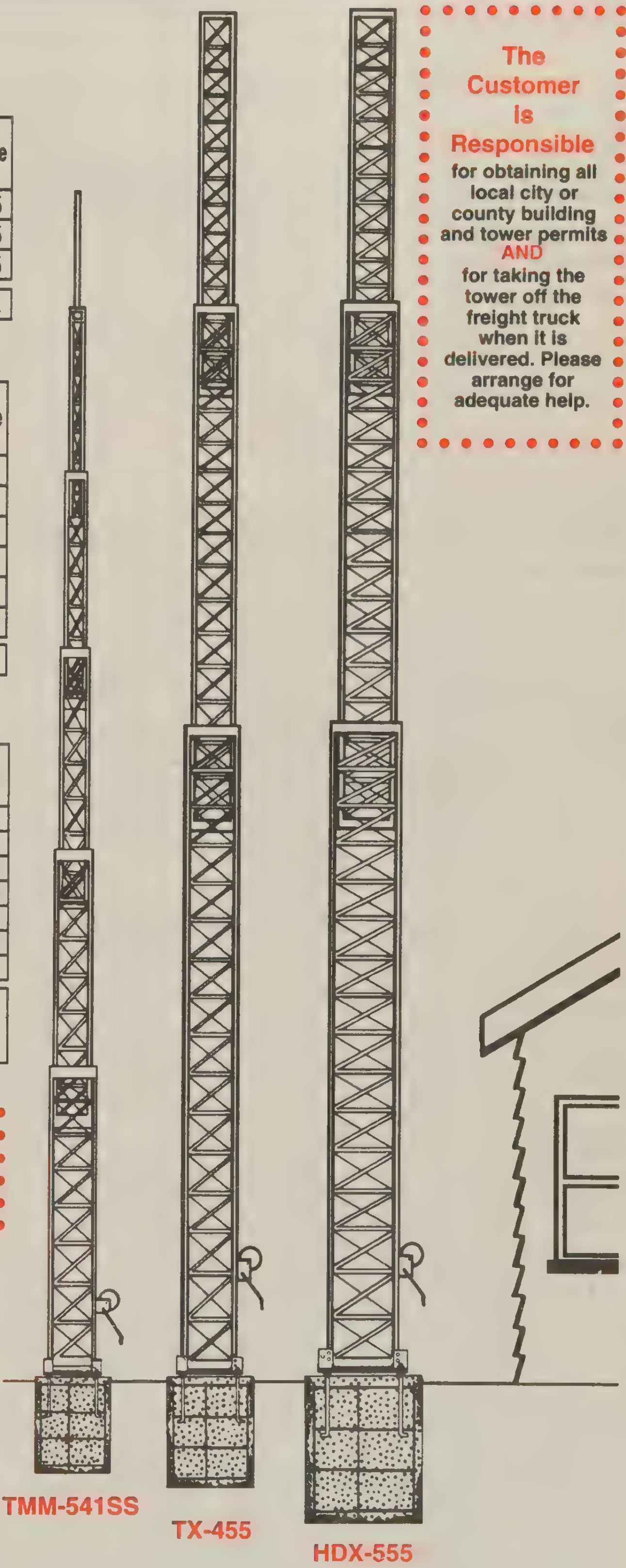
HDX-SERIES HEAVY-DUTY CRANK-UP TOWERS

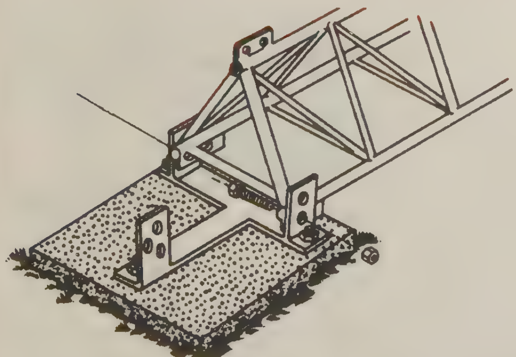
Model Number	Height Maximum	Height Minimum	Sections	Weight Pounds	Sec O.D. Top	Sec O.D. Bottom	HRO Price
HDX-538	38'	21'6"	2	600	15"	18"	$1,289.95
HDX-555	55'	22'	3	870	15"	21 5/8"	$2,279.95
HDX-572	72'	22'8"	4	1420	15"	25 5/8"	$3,869.95
HDX-572MDPL	72'	22'8"	4	1600	15"	25 5/8"	$5,929.95
HDX-589MDPL	89'	23'8"	5	2440	15"	30 5/8"	$7,729.95
HDX-689MDPL	89'	23'8"	5	3450	18"	37 1/8"	$15,029.95
HDX-5106MDPL	106'	24'8"	6	3700	15"	37 1/8"	$16,649.95

All Towers will handle 30 sq. ft. antenna at 50 MPH winds.
HDX-689MDPL rated at 60 sq. ft of antenna at 50 mph winds.
HDX-5106MDPL rated at 35 sq. ft. of antenna at 50 mph winds.

Call Toll-Free for Discounts on Towers and Accessories

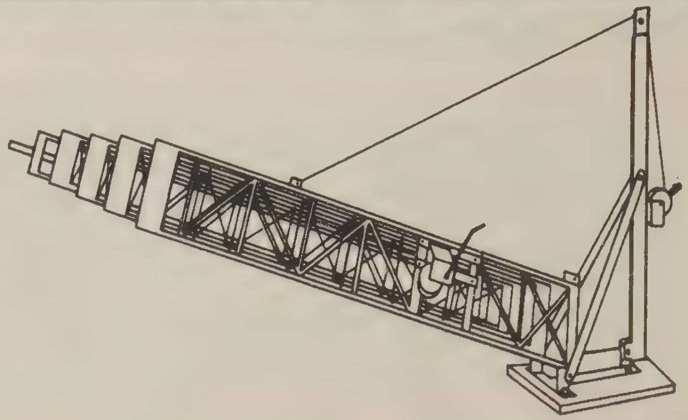
The Customer Is Responsible for obtaining all local city or county building and tower permits AND for taking the tower off the freight truck when it is delivered. Please arrange for adequate help.





The factory reserves the right to make changes or modifications without notice.

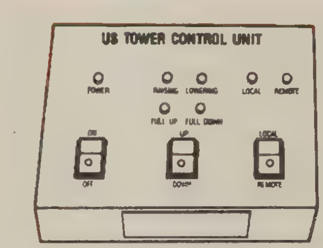
Raising Fixture

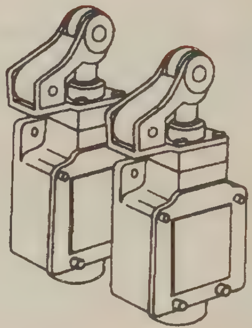


Model	Description	Weight
TRX-80	Standard model tower raising fixture for TMM, TX, and HDX series towers.	120#
TRX-80HD	Heavy-duty model tower raising fixture for TX and HDX series towers.	155#

Both TRX-80 and 80HD are designed to be easily mounted on your tower's hinged T-base for quick and safe one-man installation or antenna servicing.

Remote Control



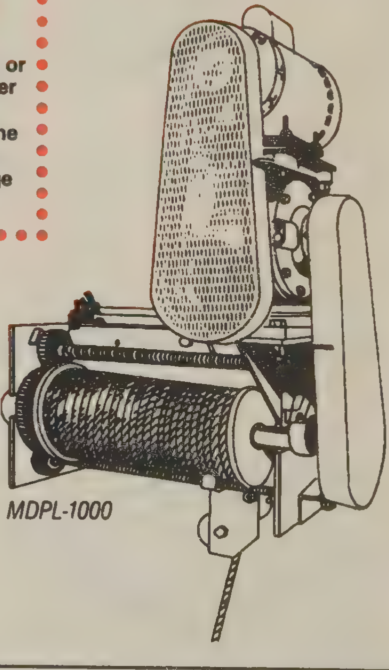


Model	Description	Weight
RMC-1000	Relay operated remote control for raising and lowering your tower from your ham shack or other remote location. The RMC-1000 includes limit switches, limit switch brackets, and two relay boxes. The RMC-1000 can only be used with the MDP-750 and MDPL-1000 motor drives.	18#
MCL-100	Limit switch control package. The MCL-100 includes limit switches, limit switch brackets and control box at the base of the tower. The MCL-100 allows you to raise and lower your tower with automatic shut down when maximum or minimum height is reached. The MCL-100 can only be used with the MDP-750 and MDLP-1000 motor drives.	7#

Motor Drives

Model	Description	Weight
MD-75	Heavy-duty motor drive with 1 HP motor and gear box.	155#
MDP-750	Heavy-duty motor drive with 1 HP motor, gear box and positive pull down. US Tower's positive pull down feature is designed to mechanically apply the same strength in the retraction process as is used in the raising of your tower. Positive pull down is very important in lowering your tower in high wind conditions. The MDP-750 differs fromthe standard motor drive (MD-75) unit which releases tension on the cables allowing the weight of the upper sections to be the only lowering force.	185#
MDLP-1000	Heavy-duty motor drive with 1 HP motor, heavy duty gear box, positive pull down and dual level wind features. Dual level wind is an exclusive US Tower design allowing the cable to wind on the motor drum in a uniform manner. This prevents the cable from overlapping on the drum. For description of positive pull down see MDP-750.	220#

The Customer is Responsible
for obtaining all local city or county building and tower permits AND for taking the tower off the freight truck when it is delivered. Please arrange for adequate help.



MDPL-1000

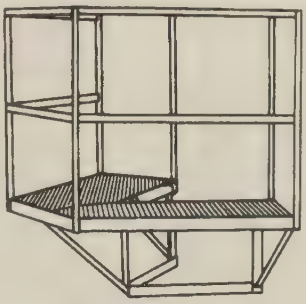
Call factory for replacement 1 HP motors, handwinches, limit switches, 3/16" x 7" x 19" and 1/4" x 7" x 19" aircraft cable, anchor bolts, belts, pulleys, sprockets, and modified bases. Tower dolly rentals are available. The factory reserves the right to make changes or modifications without notice.

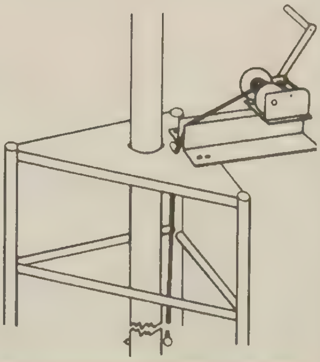
CRANK-UP ACCESSORIES

Model	Description	Weight

Service Platform

HDP	Large service platform with safety railings to provide a safe and comfortalbe surface while installing or maintaining your antenna and' rotator.	125#



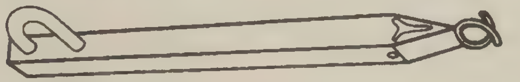


Mast Raising Fixture

MRF	Mast raising fexture with winch and cable that attaches to the top of your tower to assist in raising and lowering your antenna mast.	20#

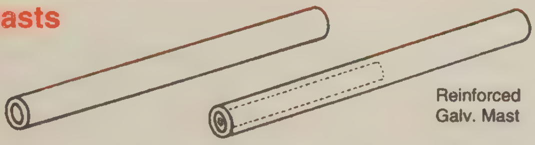
Coaxial Arm Sets

IV-16	The IV-16 slips over the top of the mast and rests at the top of the tower to hold inverted vee antennas. The IV-16 cannot be used with MARB rotator base.	5#



CX-2	Set of 2 Coax Standoff Arms	6#
CX-3	Set of 3 Coax Standoff Arms	8#
CX-4	Set of 4 Coax Standoff Arms	10#
CX-5	Set of 5 Coax Standoff Arms	13#

Masts

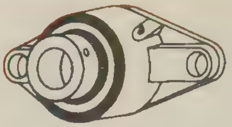


US Tower offers two different types of masts. The M-5, 10, 15 and 20 masts have .120" wall thickness. The M-15R and 20R have steel pipe inserts in the lower half of the mast which provides extra strength where most needed without adding unnecessary weight in the top portion. The M-15R and 20R have a wall thickness of .250".

Model	Description	Weight
M-5	2" O.D. x 5 foot Galv Mast	14#
M-10	2" O.D. x 10 foot Galv Mast	25#
M-15	2" O.D. x 15 foot Galv Mast	40#
M-15R	2" O.D. x 15 foot reinforced Galv Mast	50#
M-20	2" O.D. x 20 foot Galv Mast	55#
M-20R	2" O.D. x 20 foot reinforced Galv Mast	70#
CM-20	2" O.D. x 20 foot .375 wall thickness chromemolly steel	130#

3/4" x 27"	Anchor Bolt with 2 nuts	5#
1" x 36"	Anchor Bolt with 2 nuts	10#
1-1/8" x 27"	Anchor Bolt with 2 nuts	12#
RP-3	Rotator Plate for 10" section	5#
RP-4	Rotator Plate for 12.5" section	7#
RP-5	Rotator Plate for 15" section	9#

Thrust Bearing



TB-2US	Thrust Bearing for 2" mast, 2 flange holes	10#

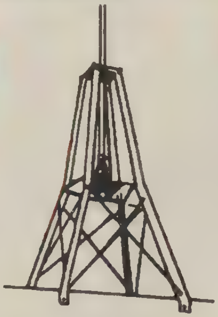
Tower Accessories

S - Standard
O - Optional

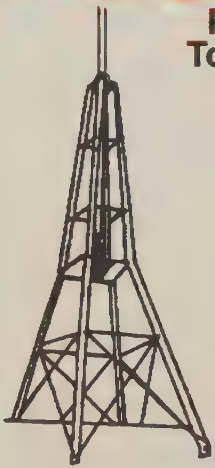
	TX-438	TX-455	TX-472	TX-472MDP	TX-489	TX-489MDPL	HDX-538	HDX-555	HDX-572	HDX-572MDPL	HDX-589MDPL	TMM-433SS	TMM-433HD	TMM-541SS	HRO Price
MASTS															
M-5	O	O	O	O	O	O	O	O	O	O	O	O	O	O	$36.00
M-8												S	S	S	CALL
M-10	O	O	O	O	O	O	O	O	O	O	O	O	O	O	$69.95
M-15	O	O	O	O	O	O	O	O	O	O	O	O	O	O	$92.95
M-20	O	O	O	O	O	O	O	O	O	O	O				$129.95
M-15R	O	O	O	O	O	O	O	O	O	O	O				$139.95
M-20R	O	O	O	O	O	O	O	O	O	O	O				$189.95
CM-20	O	O	O	O	O	O	O	O	O	O	O				$389.95
RAISING FIXTURE															
TRX-80	O	O					O	O				O	O	O	$389.95
TRX-80HD			O	O	O	O			O	O	O				$499.95
SERVICE PLATFORM															
HDP			O	O	O	O			O	O	O				$669.95
COAX STANOFF ARMS															
CX-2	O						O								$49.95
CX-3		O						O							$69.95
CX-4			O	O					O	O		O	O		$99.95
CX-5					O	O					O			O	$139.95
MOTOR DRIVES															
MD-75	O	O					O	O				O	O	O	$889.95
MDP-750		O	O	S				O					O	O	$1389.95
MDPL-1000			O		O	S			O		S				$1879.95
REMOTE CONTROL															
RMC-1000		O	O	O	O	O		O	O	O	O		O	O	$889.95
MCL-100		O	O	O	O	S		O	O	S	S		O	O	$379.95
MISCELLANEOUS															
3/4" X 27" bolts	S											S	S	S	$21.95
1" X 36" bolts		S			S	S	S		S	S					$28.95
1-1/8" X 36" bolts			S	S				S			S				$37.95
RP-3												S		S	$19.95
RP-4	S	S	S	S	S	S							S		$26.95
RP-5							S	S	S	S	S				$32.95
MRF	O	O	O	O	O	O	O	O	O	O	O		O		$249.95
TB-2US	O	O	O	O	O	O	O	O	O	O	O		O		$98.95
IV-16	O	O	O	O	O	O	O	O	O	O	O	O	O	O	$37.95

TOWERS

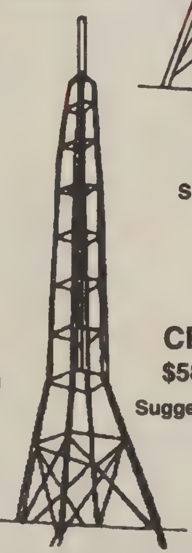
CREATE Roof Towers



CR-18
$259.95
Suggested List



CR-30
$459.95
Suggested List



CR-45
$589.95
Suggested List

Create Roof Towers are constructed of high grade aluminum with galvanized steel bracing for added stability and strength. The towers will easily accommodate your antenna requirements. The three sizes will support VHF antennas, HF tri-banders and OSCAR systems. Rotators easily mount inside the tower. An optional thrust bearing (Model #CK46) is recommended. Guying is required on all roof towers. Maximum mast size is 2.5".

Model	Height	Max Antenna Wind Load in FT2	Base Width	Max Vertical Load in lbs.	Tower Weight in lbs.
CR-18	5'10"	21 @ 90 MPH	31 1/3"	440	18
CR-30	9'10"	27 @ 90 MPH	39"	1322	33
CR-45	14'9"	23 @ 90 MPH	39"	881	57

Unarco-Rohn

25G & Accessories

25G	10' tower section.
25AG2	Top secton for use with communication antenna. Mast support tube is 2 1/4" O.D., 36" total length, extending 18" above apex of side rails.
25AG4	8' top section for communication antenna. Upper end terminates in 11" diameter flat, circular plate with a 2 1/4" hole in center.
AS25G	Accessory shelf.
GA25GD	Guy assembly
SB25G	3'4" short base section for concrete.
SBH25G	3'4" hinged short base section for concrete.
BPC25G	Concrete base plate.
BPH25G	Hinged base plate for concrete.
HB25AG	Adjustable house bracket (0-15")
HB25BG	Adjustable house bracket (0-24")
HB25CG	Adjustable house bracket (0-36")
HBU	Universal house bracket (6-30").
TB3	Heavy-duty thrust bearing is recommended for 2" O.D. mast.
WP25G	Work platform.
EF2545	Aluminum erection fixture.

Other accessories available

Catalog Prices

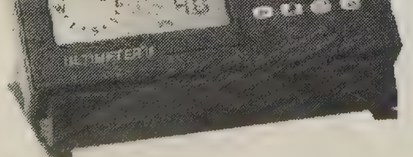
HRO discount prices shown are current as of September 15, 1995, when this catalog was assembled. Prices change both up and down. Please be sure to call one of our toll-free numbers or check our Web page for the latest prices.

We at HRO strive to offer the most competitive prices in the industry on a full line of quality ham radio products.

Many manufacturers offer "coupons" or similar promotions. Call or check our Web page at http://www.hamradio.com for the latest manufacturer promotions.

Weather Station

ULTIMETER II



The Ultimeter II is the ideal home weather station. It can provide data for SKYWARN and A.R.E.S. It is fully compatible with the Automatic Packet Reporting System. It includes a patented, super reliable, all digital wind sensor. It clamps to a mast without hardware so there is nothing to rust or corode. The station features unique point-and-plug direction calibration. An alarm tells you to crank down your tower when high winds threaten. More than 20 weather functions are provided. (Some functions require optional features.) **HRO Price $179.95**

Options: Rain Gauge $60.00
Additional keyboard / display $69.00
Data Logger for PC $69.00
RFI filter $17.00
Static Electricity Discharge Unit $17.00

General Information for Our Valued Customers

Easy Ordering

Six toll-free 800 numbers are available for orders. They are located throughout the United States. This provides personnel at one location or another to answer your questions for extended hours Monday through Saturday. You will find the same low prices at all locations and, thanks to computers, we have the stock levels of all locations available to each salesperson for estimates of availability and delivery.

24 Hour "On-Line" Ordering is now available on the INTERNET! URL is "http://www.hamradio.com."

Shipments are made from any of our 12 locations that has the particular items you need in stock. In most cases, the shipment will be made from the location nearest you (if stock is available). HRO is trying to provide the quickest shipments in the industry using these methods.

California customers can now order using a toll-free number. The number is 1-800-854-6046. It is no longer necessary for California customers to pay for the phone call.

Sales Tax

State and local laws require us to collect and remit State sales / use tax on orders shipped from any of our 12 locations INTO Arizona, California, Colorado, Georgia, or Virginia.

You will find that this small extra charge will be more than overcome by the convenience of the largest ham radio inventories in the United States. You will also find courteous and knowledgeable salespeople to assist you. We think you will find HRO to be the company you want backing you when it comes to dealing with any problems you might have with manufacturers or shipping companies.

Phone Orders

To place a phone order using a credit card, please have the following information available if you are a first-time caller or have not made a recent purchase from HRO. We will ask for your callsign (if any), credit card number, expiration date, your home telephone number, and possibly the name, address, and telephone number of the bank listed on your charge card statement.

Payment

We accept Visa, MasterCard and Discover Card. Personal checks are also accepted; however, processing time will delay shipment by some 10 days. When using a credit card, please have the card in front of you since we will need all the information, including the name of the issuing bank. If the card holder's BILLING address differs from the shipping address, please be sure to specify both addresses and telephone numbers. For your protection, we thoroughly investigate the validity of all credit card purchases.

COD Orders

COD payments must be made in cash, cashiers check, or money order at the time of delivery. There is a small fee for COD shipments.

Commercial Sales Purchase Orders

Written purchase orders will be accepted from city, state, and federal agencies, and, with prior approval of credit, from commercial organizations. HRO quotes, in most cases, prices that require payment on receipt of merchandise. You may find a surcharge for credit terms applied to your pricing. Please indicate that you require terms when calling for price quotes.

Delivery

All Alaska and Hawaii shipments via UPS must be shipped by Blue Label (2nd Day Air) or Red Label (Overnight). Please ask for charges.

In a Hurry? If you find it necessary to expedite shipments, UPS has Red Label (overnight), Blue Label (2nd-day) and Orange Label (3 day) services available at an extra cost. Please request charges for these services.

Foreign Deliveries We ship world-wide. Contact our stores, preferably by fax, with your needs. We can give you quotes and details for placing your foreign order. Payment methods include wire transfer direct to our bank as well as payment by VISA/ MC charge cards or check drawn in U.S. Funds from a U.S. Bank. Shipments are made (depending on size) by UPS, FED EX, Emery, DHL, or international air mail. Some orders to some foreign countries cannot be insured to the full value.

Truck Delivery On day of delivery, if by truck, please be sure to have enough help, and / or proper equipment on hand for unloading merchandise. Truck drivers are NOT required to provide assistance. If you are not experienced at handling large, awkward items such as towers, antennas or amplifiers, please ask properly trained people to assist you.

Canadian Orders can now be shipped via UPS. These costs will be added to your invoice.

Damaged Items

UPS If the item is obviously damaged, note this with the driver and refuse shipment. This item will be returned to HRO and another will be sent at no additional charge.

If hidden damage is noted, contact UPS as soon as possible. They will arrange pickup. Once the item is received by HRO, a replacement will be sent.

TRUCK If there is damage or the shipment is short, it is the customer's responsibility to file the claim with the trucking company. At the time of receipt of item, it is recommended that you have the driver write "damaged" or indicate shortage on the bill of lading he gives to you. Be sure to have the same notation as well as drivers signature on his copy also.

MAIL It is the customer's responsibility to file all loss or damage claims with the postal department.

Prices

Most prices shown are suggested list price. In most cases we offer large discounts. Equipment manufacturers constantly change prices, offer specials or react to the Dollar / Yen exchange rates. Simply call one of our 800 numbers and our staff will be happy to quote you the current selling price of the item you are interested in. Prices are subject to change without notice or obligation to the customer.

Software

Software is sold on a non-returnable basis. Any software problems will be resolved under the terms of the manufacturer's warranty.

Lost Items

When your order is delivered, please carefully count items and if anything is missing, notify HRO at once.

Occasionally, cartons shipped at the same time will arrive at their destination two or three days apart.

If you notify HRO within 10 days, we will replace lost or damaged items after completion of proper documentation and acceptance by the shipping agency.

New Equipment Returns

Products are not sold for evaluation. Under some circumstances (at the discretion of HRO) and with prior approval of the store of purchase, HRO will accept an item for return. Under most circumstances a 15% restocking fee and all freight charges will be assessed.

Your means of refund for returns will be the same as that used for your original payment except for cash, which will be refunded by check. HRO will pay from its corporate offices. It can take up to two weeks.

Defective merchandise may be returned within 10 days of the original purchase for exchange. Original receipt must accompany the return. Items returned for warranty replacement consideration must also include a completed, signed, "Warranty Replacement Certification Form." Customers who return equipment for replacement consideration without this form completed and signed cannot be considered for any possible warranty replacement, only warranty repair. No exceptions. Contact your salesman for details.

Manufacturer's New Equipment Warranties

Ham Radio Outlet supports all manufacturers' warranties. Actual warranty terms are included within the shipping container of most items. If needed, you may request from any of our locations a free copy of the manufacturer's written terms for any warranteed product. Please request by model number and indicate the page in this catalog that represents the product.

Ham Radio Outlet will in many cases provide in-store repairs; please contact the store of purchase for information. It will be necessary to provide us with the invoice number and purchase date, as most manufacturers need this information to process under their FREE warranty repair terms.

New Equipment Warranty Returns

When returning equipment for repair, please pack the item in original packing material or something similar to provide adequate protection during the shipping process. Note on box: "ATTENTION SERVICE." Include a copy of your purchase invoice, and a complete and detailed description of the problems. Without the invoice or a complete description, delays will be experienced in providing the proper service and returning the item to you. Be sure to insure the package for its replacement cost.

HRO will repair or replace the defective item at our option. If the item is found to be defective under the terms of the manufacturer's warranty, no charge will be made for service or return shipping. It is the customer's responsibility to ship all defective items to the service center for warranty repair.

Problems

HRO prides itself in its ability to service the customer. If there is a problem please contact the manager of the store from which you purchased the merchandise. If for some reason, your problem cannot be corrected by that store manager, please feel free to call Ham Radio Outlet Corporate Headquarters at (510) 831-1771 and explain the situation. At this point our national sales staff will see that your problem is corrected.

Thank You for choosing

HAM RADIO OUTLET

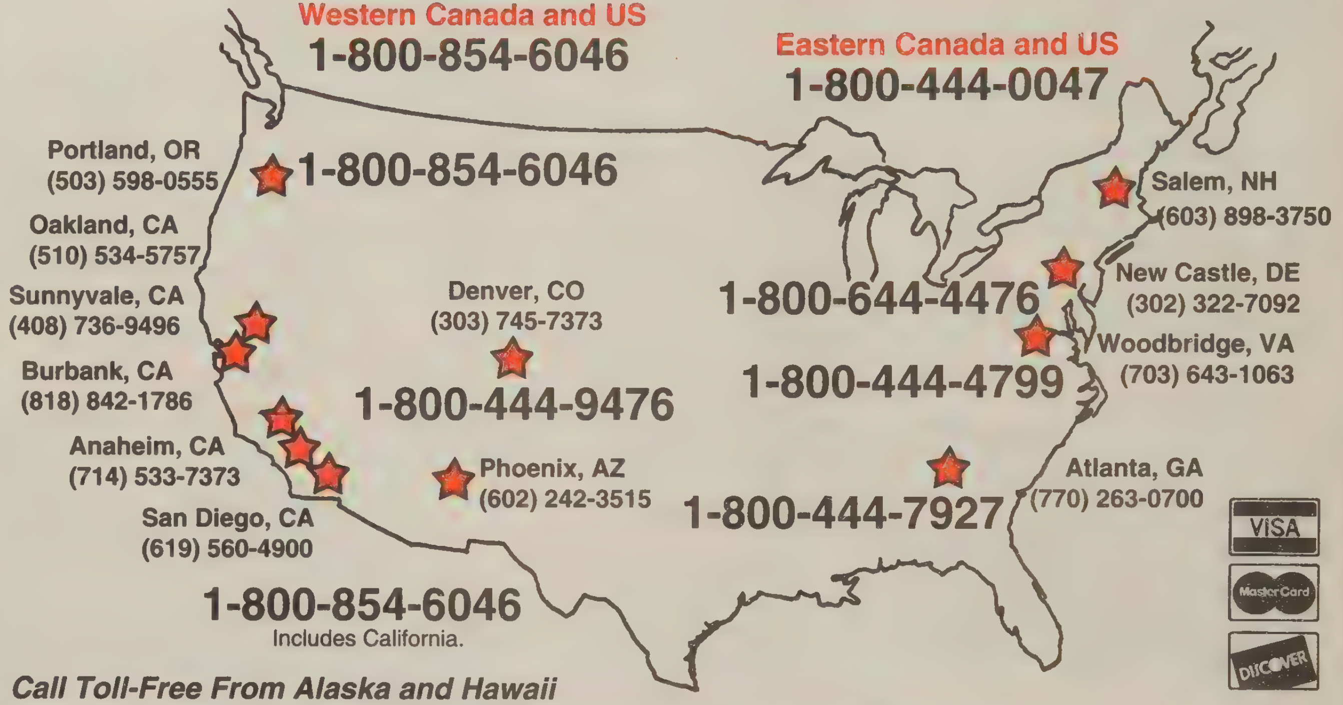
The World's Largest Ham Outlet

HAM RADIO OUTLET®

Serving You From Coast to Coast and Around the World

Western Canada and US
1-800-854-6046

Eastern Canada and US
1-800-444-0047


Portland, OR
(503) 598-0555
1-800-854-6046
Oakland, CA
(510) 534-5757
Sunnyvale, CA
(408) 736-9496
Burbank, CA
(818) 842-1786
Anaheim, CA
(714) 533-7373
San Diego, CA
(619) 560-4900
1-800-854-6046
Includes California.
Denver, CO
(303) 745-7373
1-800-444-9476
Phoenix, AZ
(602) 242-3515
Salem, NH
(603) 898-3750
New Castle, DE
(302) 322-7092
1-800-644-4476
Woodbridge, VA
(703) 643-1063
1-800-444-4799
Atlanta, GA
(770) 263-0700
1-800-444-7927

VISA • MasterCard • DISCOVER

Call Toll-Free From Alaska and Hawaii

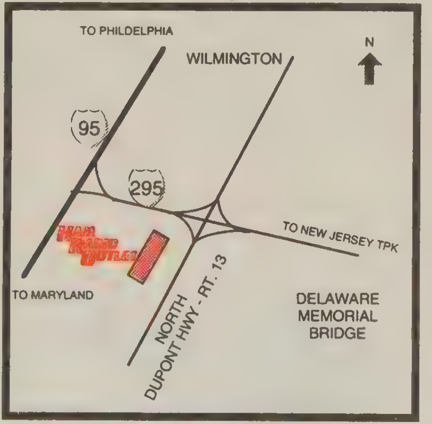
Order Toll-Free From a Location Near You

If your closest 800 number is busy, please call one of our other numbers.

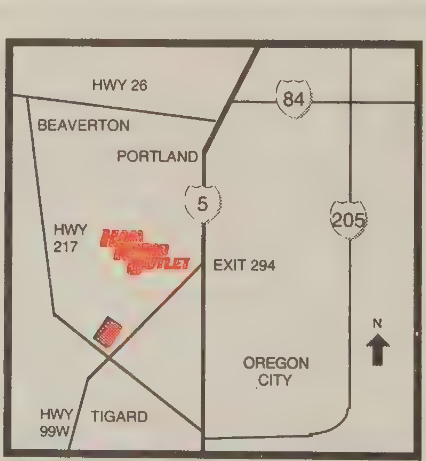
Phone Hours: 9:30 AM to 5:30 PM Monday - Saturday

12 Locations!

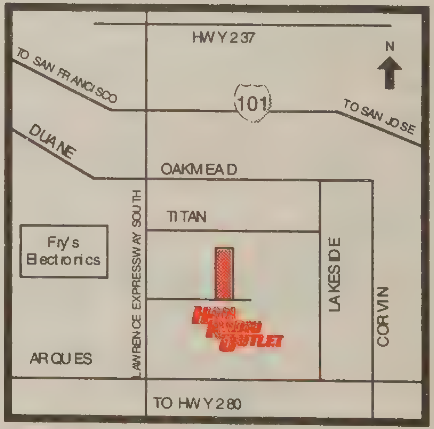
24-Hour FAX Order Lines: At All 12 Locations


TO PHILDELPHIA
WILMINGTON
N
95
295
HAM RADIO OUTLET
TO NEW JERSEY TPK
TO MARYLAND
NORTH DUPONT HWY - RT. 13
DELAWARE MEMORIAL BRIDGE

NEW CASTLE, DE 19720
1509 Parkway Plaza
(302) 322-7092
(800) 644-4476
24 Hour Fax (302) 322-8808
John N1IFL **Mgr**
Jimmy KA3LLL
Bob WN3K


HWY 26
84
BEAVERTON
PORTLAND
5
HWY 217
HAM RADIO OUTLET
205
EXIT 294
N
OREGON CITY
HWY 99W
TIGARD

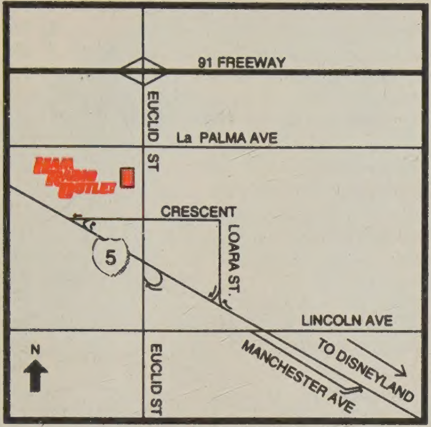
PORTLAND, OR 97223
11705 S.W. Pacific Hwy (99W)
(503) 598-0555
(800) 854-6046
24 Hour FAX (503) 684-0469
Earl KE7OA **Mgr**
Jack KG7LX
Ray KI7TN
Rene WQ6X


HWY 237
N
TO SAN FRANCISCO
101
TO SAN JOSE
DUANE
OAKMEAD
LAWRENCE EXPRESSWAY SOUTH
TITAN
Fry's Electronics
LAKESIDE
CORVIN
HAM RADIO OUTLET
ARQUES
TO HWY 280

SUNNYVALE, CA 94086
510 Lawrence Expwy, #102
(408) 736-9496
(800) 854-6046
24 Hour FAX (408) 736-9499
Ken K1ZKM **Mgr**
Joe WB6DFX, Rob WB6RZK,
George WB6DSV,
Mark KE6OFP
Roy W6PLQ
Warren WD6HDF

All Stores Open 10am - 5:30pm Monday - Saturday

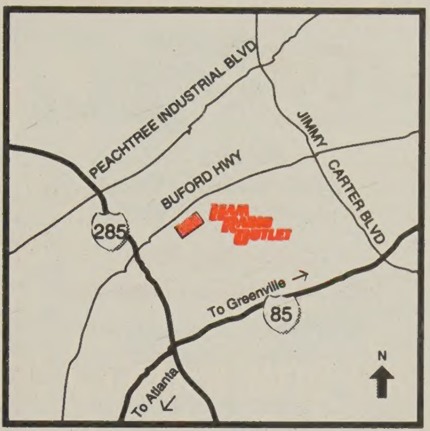
STORE LOCATIONS


91 FREEWAY
EUCLID ST
La PALMA AVE
HAM RADIO OUTLET
CRESCENT
5
LOARA ST.
LINCOLN AVE
TO DISNEYLAND
MANCHESTER AVE
EUCLID ST
N

ANAHEIM, CA 92801

933 N. Euclid St.
(714) 533-7373
(800) 854-6046
24 Hour FAX (714) 533-9485
Near Disneyland

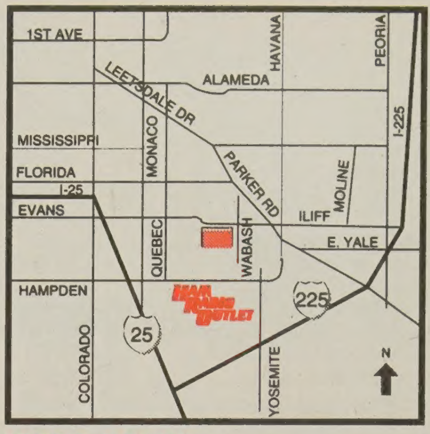
Janet WA7WMB **Mgr**
Randy N6BMD
Howard N6DEC, Eric KA6IHT
Mike WB6VUB, Dan N6PEQ
Jim W6TND, Sherri


PEACHTREE INDUSTRIAL BLVD
JIMMY CARTER BLVD
BUFORD HWY
285
HAM RADIO OUTLET
To Greenville
85
To Atlanta
N

ATLANTA, GA 30340

6071 Buford Hwy.
(707) 263-0700
(800) 444-7927
24 Hour FAX (707) 263-9548
Doraville, 1 mi. north of I-285

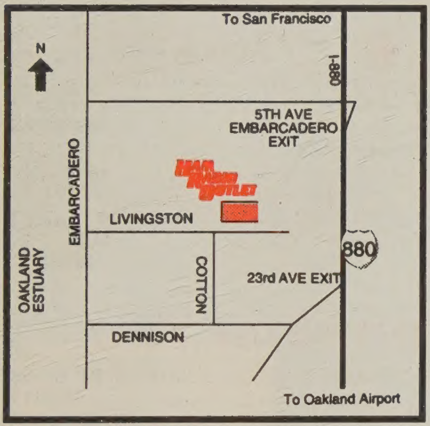
John KB4NUC **Mgr**
Mark KJ4VO, Phil N4DRO
Neil KC4MJ, Bill KF8AZ
Scott KY2P, Rick WD4ABO
Dennis KD4VHS


1ST AVE
HAVANA
PEORIA
LEETSDALE DR
ALAMEDA
I-225
MISSISSIPPI
MONACO
PARKER RD
FLORIDA
I-25
MOLINE
EVANS
ILIFF
QUEBEC
WABASH
E. YALE
HAMPDEN
HAM RADIO OUTLET
225
25
COLORADO
YOSEMITE
N

DENVER, CO 80231

8400 E. Iliff Ave. #9
(303) 745-7373
(800) 444-9476
24 Hour FAX (303) 745-7394

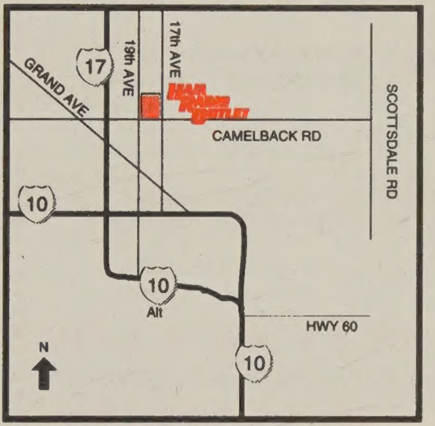
Joe KD0GA **Mgr**
John N5EHP
Wells, KB0PYW
Orville KF0PQ
Dean AC0S


To San Francisco
N
I-880
5TH AVE
EMBARCADERO
EXIT
EMBARCADERO
HAM RADIO OUTLET
LIVINGSTON
880
OAKLAND ESTUARY
COTTON
23rd AVE EXIT
DENNISON
To Oakland Airport

OAKLAND, CA 94606

2210 Livingston St.
(510) 534-5757
(800) 854-6046
24 Hour FAX (510) 534-0729
I-880 at 23rd Ave. Ramp

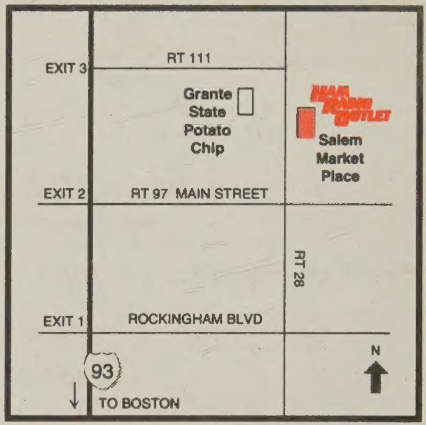
Mac K6KAP **Mgr**
Don KJ6JF
Brent N6XBH
Larry KB2GV, Cliff KK6SJ
Bill KN6OT


17
19th AVE
17th AVE
GRAND AVE
HAM RADIO OUTLET
CAMELBACK RD
SCOTTSDALE RD
10
10
Alt
HWY 60
10
N

PHOENIX, AZ 85015

1702 W. Camelback Rd.
(602) 242-35155
(800) 444-9476
24 Hour FAX (602) 242-3481

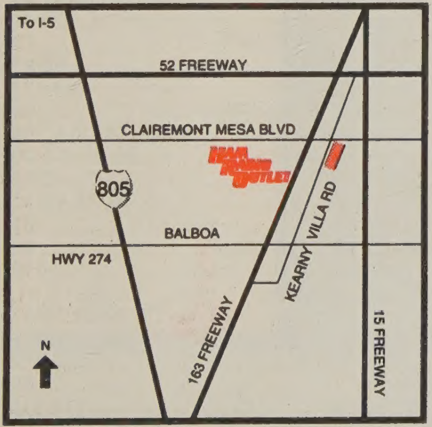
Gary WB7SLY **Mgr**
Ron WB7ADO
Tom W7JCH, Kathy N7AQM,
Mike K0QZ, Marshall
W7DQS, John NW7W


EXIT 3
RT 111
Grante State Potato Chip
HAM RADIO OUTLET
Salem Market Place
EXIT 2
RT 97 MAIN STREET
RT 28
EXIT 1
ROCKINGHAM BLVD
93
TO BOSTON
N

SALEM, NH 03079

224 N. Broadway D-12
(603) 898-3750
(800) 444-0047
24 Hour FAX (603) 898-1041
28 mi. N. of Boston, Exit 2, I-93

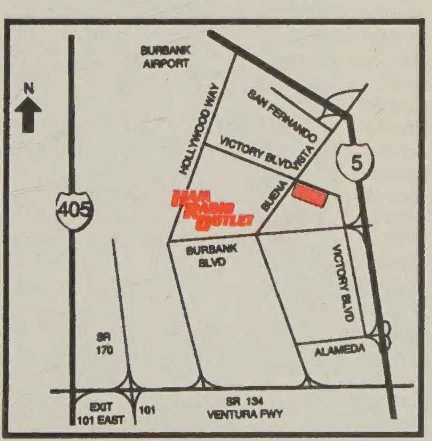
Chuck KM4NZ **Mgr**
Paul NW1U, Gene WA1UXA,
Jim WK1V, Tim KB1MM,
Barry N1DNU, Rob KD1FM,
Manuel HI8MT, Chris KA1SIE


To I-5
52 FREEWAY
CLAIREMONT MESA BLVD
HAM RADIO OUTLET
805
BALBOA
KEARNY VILLA RD
HWY 274
163 FREEWAY
15 FREEWAY
N

SAN DIEGO, CA 92123

5375 Kearny Villa Rd.
(619) 560-4900
(800) 854-6046
24 Hour FAX (619) 560-1705
Hwy. 163 & Clairemont Mesa Blvd.

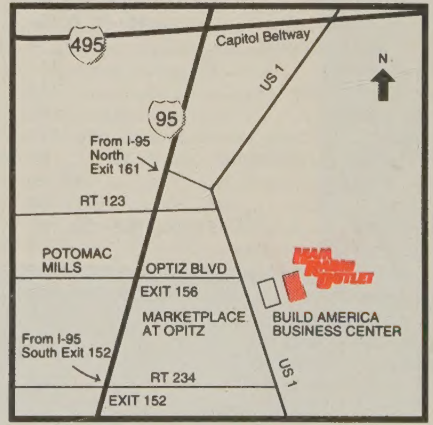
Tom KM6K **Mgr**
Ron N6OMW
Jose XE2SJB
Bob KA6EKT


BURBANK AIRPORT
N
HOLLYWOOD WAY
SAN FERNANDO
VICTORY BLVD
VISTA
5
405
BUENA
HAM RADIO OUTLET
BURBANK BLVD
VICTORY BLVD
SR 170
ALAMEDA
EXIT 101 EAST
101
SR 134 VENTURA FWY

BURBANK, CA 91506

2484 West Victory Blvd.
(818) 842-1786
(800) 854-6046
24 Hour FAX (818) 842-5283

Jon KB6ZBI **Mgr**
Debbie N6UOM
Bruno KC6WGR


495
Capitol Beltway
US 1
N
95
From I-95 North Exit 161
RT 123
POTOMAC MILLS
OPTIZ BLVD
HAM RADIO OUTLET
EXIT 156
MARKETPLACE AT OPITZ
BUILD AMERICA BUSINESS CENTER
From I-95 South Exit 152
RT 234
US 1
EXIT 152

WOODBRIDGE, VA 22191

14803 Build America Drive
(703) 643-1063
(800) 444-4799
24 Hour FAX (703) 494-3679
Exit 161, I-95 South to US 1

Rick AA0ZB **Mgr**
Jerry WA2VGV
Curtis WB4KZL
Lou KC4HR, Mike KA3TMQ
John N4LJS

INDEX

- *ADI Corporation* 42
- *AEA* 46-47
- *Alinco* 3-7
- *Alpha Delta* 88, 90
- *Ameco* 52
- *Ameritron* 72-73, 88
- *Ampire* 71
- **Amplifiers**
  - HF 10, 35, 43, 71-73
  - VHF / UHF 49, 71-72
- *Antenna Specialists* 106
- *Antenna Supermarket* 51
- **Antennas**
  - Handheld 94-95, 107-108
  - HF 10, 35, 47, 85, 90-93, 96-101, 104
  - HF Mobile 91, 101
  - On Glass 85, 105-106
  - Satellite 95
  - Scanner 94-95, 103
  - SWL 44, 51, 83, 90
  - VHF/UHF 47, 85, 92, 94--108
  - VHF/UHF Mobile 85, 94-108
- *ARRL* Products 52
- *Artsci* 52-53
- *Astron* 74
- *Austin Antennas* 94
- *B & W* 80
- Baluns 89
- Batteries 5, 16-17, 24, 30, 41, 74-75
- *Bencher* 51, 80, 89
- *Belden* 111
- *Bird* 76
- Books 52-53
- *Buckmaster* 54
- *Butternut* 91
- Cables 5, 17, 24-25, 31, 72-73, 111
- *Callbook* 52, 54
- Cases, Radio 5, 20, 27, 30, 41, 51
- Chargers, Battery 5, 16, 24, 27, 30, 41, 75
- Clocks 85, 89
- *Coax-Seal* 111
- *Comet* 107-109
- *Communication Specialists* 81
- **Computer Products**
  - Hardware 46, 48, 83
  - Software
    - CD-ROMs 54
    - Database 54, 79
    - Educational / Morse Trainers 54
    - Logging 47, 79, 84
    - Packet 46, 48, 83-84
    - Radio Control 47, 84
- Connectors 111
- *Connect Works* 111
- *CQ Books* 52
- *Create* 95, 118
- *CSI (Connect Systems)* 89
- *Cushcraft* 96-99
- *Daiwa* 76-77, 88
- *Diamond* 76, 95, 102-103, 107
- *Digital Communications* 81
- Dummy Loads 85, 88
- Duplexers 94, 102, 107, 109
- *Dymek* 51
- Encoders / Decoders 10, 25, 27, 41, 79, 81
- **Filters**
  - High / Low Pass 80
  - Noise 25, 80-81, 84
  - Radio 11, 21
  - Telephone 80
- *Forbes Group* 106
- *Force 12* 93
- Frequency Counters 77-79
- *Geochron* 89

Serving You
From Coast to Coast
& Around the World

Order Toll-Free
From a Location Near You

1-800-444-0047
New England

1-800-444-0047
Eastern Canada

1-800-644-4476
Northeast

1-800-444-4799
Mid-Atlantic / Mid-West

1-800-444-7927
Southeast / Mid-West

1-800-444-9476
Mountain / Central

1-800-854-6046
West / Northwest

1-800-854-6046
Western Canada

If Your Closest 800 Number
Is Busy, Please Call
One of our Other Numbers.

24-Hour FAX Order Lines:
See page 14, 24, or 120 & 121

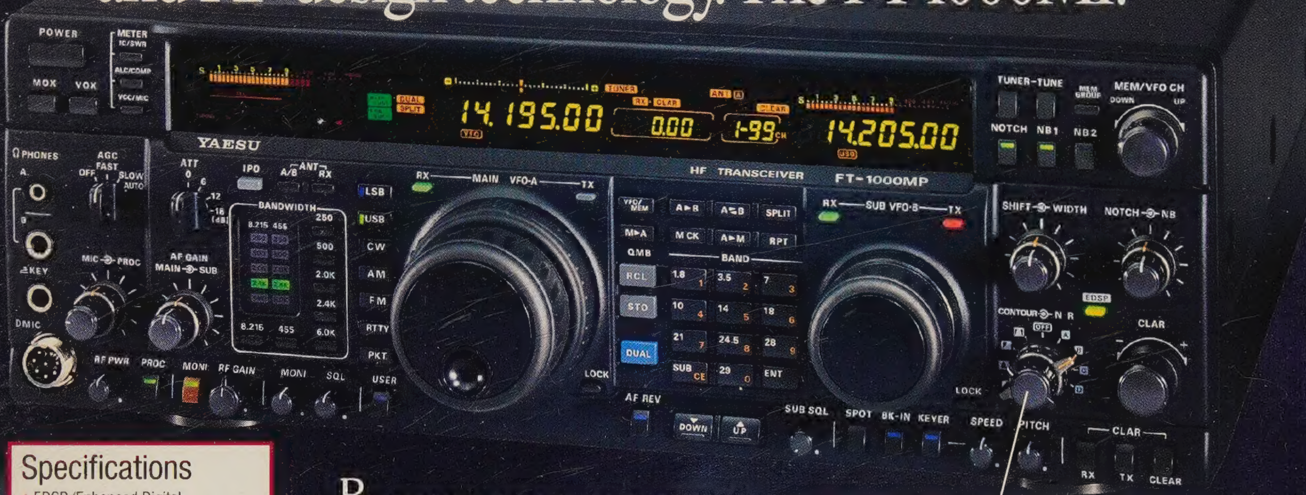
- *GGTE* 54
- Global Positioning Systems 11
- *Gordon West School / W5YI* 52, 54
- Headphones 5, 17, 21, 27, 30, 41, 77
- *Heil Sound* 77
- *Hofi* 88
- *Hustler* 100-101
- *Hy-Gain* 88-89, 92, 111
- *Icom* 8-17, 45, 71-72, 74, 86, 107
- *Innova* 75
- Internet 7, 23, 50, 75, 77, 118
- *JPS* 81
- *JRC* 71-72
- *Kantronics* 48-49
- *KB6MT* Products 52
- *K-Com* 80
- *Kenwood* 18-27, 45, 74, 76, 87, 89, 107
- Keys / Keyers 10, 50-51, 84
- *KLM* 90, 95, 106
- *Landwehr* 71
- *Larsen* 104-107
- Lightning Protectors 88, 98
- *M²* 95, 110
- *MacHam Radio* 54
- *Maldol* 95
- Masts, Fiberglass 95
- *Maxrad* 95
- Meters 35, 47, 76-77, 82
- *MFJ* 82-85
- Mikes 5, 7, 10, 17, 21, 25, 27, 30, 34, 41, 77, 83
- *Mirage* 71-72
- *Mobile Mark* 91, 106
- Mobile Mounts 5, 7, 10, 17, 21, 25, 41, 73, 94, 101, 103, 106-107, 109
- *Nye Viking* 50, 87
- *Oak Bay Technologies* 73, 80
- *Optoelectronics* 78-79
- *Outbacker* 91
- Owl 111
- Packet 31, 46, 48, 73, 83-84, 97
- *Palomar Engineers* 50, 87
- *Periphex* 74
- Phone Patch 21, 84, 89
- *Pouch, The* 51
- Power Strips 73, 84
- Power Supplies 10, 21, 35, 74
- Preamps 10, 49, 71
- *Premier Communications* 107
- *Pro-am* 91, 106-107
- *QRZ!* 54
- *Quantum Instruments* 75
- Radio Publications 52
- **Radios**
  - Handheld 3-4, 15-16, 26-29, 39-40, 42
  - HF 7-9, 18-20, 32-34, 42-43, 83
  - Marine 21
  - Mobile 6-7, 13, 20, 22-23, 31, 36-37, 42
  - Packet 31, 46, 48, 83
  - Receivers 14, 20, 38, 44-45, 83
  - Scanners 53
  - VHF/UHF Base 8, 12, 24, 38
- *Ranger* 42
- Repeaters 39
- *RF Concepts* 49, 71-72
- Rotators 110-111
- *Sangean* 45
- **Satellite Items**
  - Antennas 95
  - Radios 8, 12, 24, 36, 38
  - Rotators 110-111
- Scanner Antennas 94-95, 103
- Scanner Books 52-53
- Scanners 53
- *SGC* 43, 72, 86
- Signal Processors 80-81
- *Sony* 44
- Speakers 5, 10, 17, 20-21, 25, 27, 30, 41, 83
- *Standard* 28-31
- *Startek International* 77
- Station Monitor 20-21
- Store Locations 120-121
- *Swiech Communications* 106
- Switches, Antenna 10, 82, 88, 103, 105
- SWL Antennas 44, 51, 83, 90
- SWL Books 52-53
- SWL Receivers 14, 20, 38, 44-45, 83
- *Tenna Hitch* 107
- *Timewave Technology* 80
- Towers 112-118
- Tuners, Antenna 10-11, 21, 35, 43, 73, 82-83, 86-87
- *Ultimeter* 118
- *Unarco-Rohn* 118
- *Uniden* 53
- *US Towers* 112-117
- *Valor Vectronics* 76, 80, 87-88, 94
- *Van Gorden* 72, 90
- *Vibroplex* 50
- Weather Station 49, 118
- Worldwide Web 7, 23, 50, 75, 77, 118
- *Yaesu* 32-41, 45, 71-72, 74, 87, 89, 107, 110

EDSP RX/TX

All-Mode HF Transceiver **FT-1000MP**

The year was 1956. Electronic communication throughout the world was on the threshold of significant and remarkable change. Intrigued by the development of single-sideband radio theory, a young engineer and amateur radio experimenter painstakingly assembled an SSB transmitter. Word of his successful efforts spread quickly among his friends, and soon radio amateurs from all over the country were requesting transmitters just like it. Thus was born the first invention of JA1MP, founder of Yaesu. Though his key is now silent, in tribute to his leadership and exceptional contributions to the radio art, the FT-1000MP carries the memory of his call sign.

An HF Masterpiece, Combining the Best of Digital and RF design technology. The FT-1000MP.



Specifications

- EDSP (Enhanced Digital Signal Processing)
- Shuttle-jog Rapid Tuning Enhancement
- Directional Tuning Scale for CW/Digital mode and clarifier offset display
- Dual In-Band Receive w/ Separate S-Meters
- Selectable Antenna Jacks
- Collins SSB Mechanical Filter built-in, 500 Hz CW Collins filter plug-in, optional
- Selectable Cascaded Crystal and Mechanical IF Filtering (2nd and 3rd IF Filters)
- User-programmable Tuning Steps w/0.625 Hz High Resolution Low-Noise DDS Circuit
- Custom Feature Set-up via New Menu System
- Adjustable TX Output Power: 5-100W (5-25W AM)
- True Base Station: Both 100-117 or 200-234± VAC 10%, 50/60 Hz and 13.5 VDC Power Inputs

Blending digital and RF technology, the FT-1000MP features a Yaesu exclusive: Enhanced Digital Signal Processing (EDSP). Beginning on the receive side with Yaesu's industry-standard high-intercept front end design, the RF signal is then fed to the IF stages, where an impressive array of 8.2 MHz and 455 kHz IF filters (including a built-in Collins SSB Mechanical Filter) establish the tight shape factor so important in obtaining high dynamic range and low noise figure. Finally, the EDSP system provides specially-designed filter selections and response contours for maximum intelligence recovery.

Only with this combination of EDSP, independently selectable 8.2 MHz and 455 kHz IF filters, and a low-noise DDS local oscillator system can receiver performance without compromise be obtained. You can customize your FT-1000MP by choosing from 2.0 kHz, 500 Hz, and 250 Hz optional, cascaded IF filters, then zero in on weak signals using Yaesu's exclusive Shuttle-jog Rapid Tuning Enhancement and high-resolution (0.625 Hz) DDS VFO. Without question, the FT-1000MP is the most technologically advanced HF rig today.

EDSP operates in both transmit *and* receive modes. On receive, the EDSP produces enhanced signal-to-noise ratio and significantly improved intelligence recovery during difficult situations involving noise and/or interference. The result of hundreds of hours of laboratory and real-world experimentation, EDSP's 4 preset random noise reduction protocols and 4 digital filtering selections are controlled by easy-to-use concentric controls on the front panel of the transceiver. High, low, and mid-range cuts for voice work are teamed with razor-sharp CW bandpass filters and an automatic notch filter which identifies and attenuates undesired carriers or heterodynes. Also operational in the transmit mode, EDSP provides 4 performance-enhancement pattern selections for different operating circumstances, ensuring best readability of *your* signal on the other end of the path.

Once again, Yaesu's engineers have reaffirmed the vision and dedication of JA1MP which began nearly 40 years ago. See the incomparable FT-1000MP today.

FT-1000/D
Legendary 200W
All Mode HF Transceiver
"The Dream Station"

14.195.00
2.205.00
YAESU

YAESU
Choice of the World's top DX'ers

© 1995 Yaesu USA
17210 Edwards Road, Cerritos, CA 90703
(310) 404-2700

Specifications subject to change without notice. Specifications guaranteed only within amateur bands. Some accessories and/or options are standard in certain areas. Check with your local Yaesu dealer for specific details. Collins is a trademark of Rockwell International Corporation

ICOM ROLLS BACK PRICES!!
Up to 20% Permanent Price Reductions
ICOM®
ICOM
THE NEXT GENERATION

HAM RADIO OUTLET
933 N. EUCLID ST.
ANAHEIM, CA 92801

Bulk Rate
U.S. Postage
PAID
Permit #4048
City Of Industry
California

LESLIE ZWIEBEL
208 STANFORD AVE
MENLO PARK CA 94025